

ENVIRONMENTAL ASSESSMENT
LIVESTOCK GRAZING AUTHORIZATION

EA Number - CA-650-2004-36

**Allotment Name(s): Cantil Common, Monolith Cantil, Boron,
Bissell, Antelope Valley, Warren, Spangler Hills, Hansen Common,
Lava Mountain, Rudnick Common, and Walker Pass Common
sheep allotments**

Ridgecrest Field Office, BLM

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TABLE OF CONTENTS

1. CHAPTER 1: INTRODUCTION	4
A. Summary	4
B. Background	4
C. Tiering to Existing Land Use Plan/EIS	5
D. Purpose and Need for the Proposed Action	6
E. Plan Conformance	6
F. Voluntary Relinquishment	7
G. Tribes, Individuals, Organizations, or Agencies Consulted	7
2. CHAPTER 2: PROPOSED ACTION AND ALTERNATIVES	9
A. Proposed Action	9
B. No Action Alternative	13
C. No Grazing Alternative	16
3. CHAPTER 3 – ENVIRONMENTAL ANALYSIS	17
A. Livestock Grazing	17
B. Air Quality	24
C. Biological Soil Crusts	26
D. Cultural Resources	28
E. Environmental Justice	35
F. Farmlands, Prime Or Unique	36
G. Flood Plains	36
H. Invasive, Non-Native Species	37
I. Native American Concerns	38
J. Recreation	39
K. Social & Economic Values	41
L. Soils	43
M. Special Status Plants Species	44
N. Waste, Hazardous Or Solid	46
O. Water Quality	46
P. Wetlands/ Riparian Zones	48
Q. Wild And Scenic Rivers	50
R. Wilderness	50
S. Wild Horses And Burros	51
T. Wildlife	51
U. Vegetation	66
CUMULATIVE IMPACTS	69

5. APPENDICES:

APPENDIX 1 – ALLOTMENT MAPS	78
APPENDIX 2 - PROPER USE FACTORS	84
APPENDIX 3 – AVERAGE TIME SPENT ON PUBLIC LAND	88
APPENDIX 4 – RANGE IMPROVEMENTS	91
APPENDIX 5 – CONSULTATION, COORDINATION, & COOPERATION	93
APPENDIX 6 – WILDLIFE TABLES	96
APPENDIX 7 – PROPOSED REGIONAL STANDARDS & FALLBACK STANDARDS & GUIDELINES	102
APPENDIX 8 – LIVESTOCK GRAZING CULTURAL AMENDMENT	108
APPENDIX 9 – EPHEMERAL SHEEP STUDY	114
APPENDIX 10 – WEED INFORMATION	117
6. REFERENCES	120

CHAPTER 1: INTRODUCTION

A. Summary

The Bureau of Land Management (BLM) is proposing to issue a 10-year permit or lease, to authorize ephemeral based livestock grazing in accordance with law and policy described in the Purpose and Need section below. The following is a summary of the current situation:

Table 1A; EPHEMERAL SHEEP GRAZING ALLOTMENTS

Allotment	Public Land Acres (for Sheep)	Kind of Livestock	Average Current Use (1991-2006) (Sheep AUMs)	Acres of Critical DT Habitat
Antelope Valley	7,158	Sheep	111	0
Bissell	5,596	Sheep	318	0
Boron	10,852	Sheep	138	0
Cantil Common	319,063	Sheep	3,680	224,673
Lava Mountain	20,902	Sheep	408	2,165
Monolith Cantil	47,554	Sheep	260	32,815
Spangler Hills	57,695	Sheep	775	0
Warren	556	Sheep	59	0
Hansen	16,840	Sheep/Cattle	504	0
Rudnick Common	102,000	Sheep/Cattle	654	0
Walker Pass	32,100	Sheep/Cattle	692	0
Total	775,557		7,599	259,653

B. Background

In 2000, sixteen (16) grazing permits/leases (11 grazing allotments) for domestic sheep operations expired at the end of the 1999 grazing year (2/28/00). These sixteen grazing permits/leases were renewed under the authority of Public Law 106-113. The duration of the grazing permits/leases were for ten years and contained the same terms and conditions as the expiring grazing permits/leases. Public Law 106-113 required compliance with all applicable laws and regulations, which include the National Environmental Policy Act (NEPA) and the Endangered Species Act (ESA). Following the analysis of the environmental impacts these grazing permits/leases maybe approved, canceled, suspended or modified, in whole or in part, to meet the requirements of such applicable laws and regulations.

The Bureau of Land Management (BLM) is proposing to issue a ten-year term length grazing permits/leases on eleven allotments to authorize ephemeral sheep grazing on public lands within the jurisdiction of the Ridgecrest Field Office

C. Tiering to Existing Land Use Plan/EIS

This Environmental Assessment (EA) is tiered to the West Mojave Plan (WEMO) Final EIS of (January 2005) and provides site-specific analysis on the allotment level. Tiering helps focus this EA more sharply on the significant issues related to grazing on these allotments while relying on the WEMO analysis for background. Analysis of environmental issues previously considered and addressed in the WEMO plan will be incorporated by reference. The site-specific issues analyzed for these allotments, as well as the issues that are incorporated by reference but will not be analyzed in detail, are identified in chapter 3 of this EA.

A summary of the analysis tiered in this EA is as follows:

1. WEMO is an amendment to the California Desert Conservation Area (CDCA) Plan developed expressly to address special status plant and animal species and to establish conservation strategies for those species within the multiple use context required for the CDCA by section 601 of the Federal Land Management and Policy Act (FLPMA). As part of the conservation strategy BLM determined which public lands will be available or unavailable for livestock grazing. Livestock grazing in the CDCA is an economic resource of public lands recognized in section 601 of FLPMA. In addition to designating lands available or unavailable for grazing, the Northern & Eastern Mojave Desert Management Plan (2002) (NEMO), the Northern & Eastern Colorado Desert Coordinated Management Plan (2002) (NECO) and WEMO established programmatic management prescriptions including regional land health standards and guidelines for grazing management; utilization prescriptions for perennial species; restrictions on sheep grazing within tortoise habitat; monitoring requirements; and specific management prescriptions for Desert Wildlife Management Areas (DWMAs) such as the significant reduction of ephemeral authorizations and the implementation of an ephemeral forage production threshold of 230 pounds per acres (pg 2-130 from WEMO FEIS). This EA analyzes the specific application of the programmatic management prescriptions of WEMO and considers alternative means to achieve the purpose and need on these allotments as described in section C of this chapter.
2. This EA analyzes the range of alternatives for grazing consistent with WEMO, including a proposed action and continuation of current management (No Action). A no grazing alternative is considered to address voluntary relinquishment and subsequent designation of the allotment as unavailable for grazing. Chapter 2 of this EA describes the alternatives analyzed in detail and identifies the alternatives considered but dismissed from detailed consideration.
3. Impacts of livestock grazing were addressed at a regional level in WEMO. Analysis addressed the impacts of livestock grazing on a wide range of resource topics, including impacts to air quality, soil, vegetation, wildlife, cultural resources, wilderness, and socio-economic impacts. The regional analysis is incorporated by reference in this EA (pg 3-1 through 3-294; WEMO FEIS) but general discussion of these impacts will not be repeated. The EA analysis will sharply focus on the specific environmental issues associated with areas where livestock congregate on the allotment, specific areas of the allotment which are not meeting land health standards due to grazing, and areas of special status species or critical habitat that may be affected by grazing on this allotment. Discussion of the specific topics analyzed in this EA, as well as other resource topics addressed regionally but that will be excluded from further analysis in the EA, is contained in chapter 4.

4. WEMO balances conservation with public use, occupancy, and development on a regional level. For example, Areas of Critical Environmental Concern (ACECs/DWMAs) are established, routes of travel on public lands designated open, limited or closed to motorized vehicles, and other management prescriptions are provided to guide multiple use management. Within the context of the CDCA Plan as amended by WEMO, BLM is proposing specific lease terms and conditions to ensure that an appropriate multiple use balance is maintained on these allotments while providing for conservation in accordance with WEMO and the associated biological opinion. In addition, BLM may use its authority to close an area of the allotment to grazing use or take other measures to protect resources if needed. Therefore, issuance of a fully processed grazing lease with such applicable terms and conditions is necessary to manage the public's use, occupancy, and development of the public lands and prevent unnecessary or undue degradation of the lands. (43 USC 1732(b)).

D. Purpose and Need for the Proposed Action

The purpose of the proposed action is to complete a site-specific evaluation of grazing that provides information to be analyzed by the BLM in conformance with the implementing regulations for the NEPA (40 CFR Part 1500), FLPMA, BLM grazing regulations (43 CFR Part 4100), and Public Law 106-113 section 325 to determine whether to authorize grazing within this allotment and whether changes are necessary to current management of the allotment.

The need for the proposed action is to authorize grazing for this public land grazing allotment in compliance with the prescriptions prescribed in the WEMO, dated January, 2005, the Biological Opinion for the California Desert Conservation Area Plan, dated March 31, 2005, and the proposed Regional Rangeland Health Standards

E. Plan Conformance

The proposed action is in conformance with to the following plans:

The California Desert Conservation Area Plan (CDCA Plan), as amended. The decisions of the CDCA plan that specifically pertain to this proposed action are included under the Livestock Grazing Element, page 67.

The CDCA Plan Amendment for the West Mojave Desert region (WEMO). The decisions of the WEMO plan that specifically pertain to this proposed action are included within this under the Proposed Action.

The Rangeland Health Assessments have not yet been completed on all of these allotments. Only the Rudnick Common Allotment and the Walker Pass Common Allotment have Assessments and Determinations completed. Within the areas that sheep grazing occurs and could potentially impact are meeting the standards for rangeland health. Currently the remaining assessments are scheduled for completion in 2007. These assessments will be conducted following the procedures in the newly released "Interpreting Indicators of Rangeland Health (Tech Reference 1734-6), version 4 (2005)".

Rangeland Health Fall Back Standards and Guidelines for Livestock Grazing remain in effect until CDD S&G are approved by Secretary.

F. Voluntary Relinquishment

WEMO identifies seven of these eleven allotments for voluntarily relinquishment; Boron, Bissell, Cantil Common, Monolith Cantil, Rudnick Common, Lava Mountain, Spangler Hills. Voluntary relinquishment of the grazing permit/lease for these seven allotments, in combination with designation of the public lands as unavailable for livestock grazing, is an important method for achieving conservation goals for special status species identified in the WEMO plan amendment. BLM's decision to identify these allotments for voluntary relinquishment in the WEMO plan amendment and subsequent designation of the public lands as not available for grazing was based on criteria set forth in the BLM land use planning handbook, H-1601-1, Appendix C.

Voluntary relinquishment and designation as unavailable for grazing would only occur where BLM determines that the action will result in direct conservation benefits for special status species as provided in WEMO. A grazing decision on the voluntary relinquishment request will be issued based on the site-specific analysis of this EA and other required procedures of BLM's 4160 regulations. Upon relinquishment and issuance of the final grazing decision, BLM will, without further analysis or notice: not reissue the permit/lease; remove the allotment designation; assume any and all private interest in range improvements located on public lands; and designate the land within the allotment as unavailable for livestock grazing. A separate plan amendment or revision will not be required.

G. Tribes, Individuals, Organizations, or Agencies Consulted

The BLM consulted with the following individuals, Federal, state and local agencies, tribes and non-BLM persons during the development of this environmental assessment.

1. Interdisciplinary Team Members:

David Sjaastad,	Resources Branch Chief,	Interdisciplinary Team Leader
Sam T. Fitton,	Natural Resource Specialist,	Grazing Management
Donald Storm,	Archeologist,	ACEC, Cultural & Native American
Glenn Harris,	Natural Resource Specialist,	Botany, Soil, Air & Water
Bob Parker,	Wildlife Biologist,	Wildlife & Riparian Management
Shelley Ellis,	Wildlife Biologist,	Wildlife & Riparian Management
Martha Dickes,	Wilderness Specialist	Wilderness
Craig Beck,	Recreation Specialist	Recreation
Peter Graves,	NEPA	

2. Agency Participation

Wildlife agencies: BLM initially submitted copies of the proposed action to the California Department of Fish and Game and the U. S. Fish and Wildlife Service, basically initiating informal consultation. BLM followed up with more complete copies of the Environmental Assessments asking for comments. Neither of these agencies responded with comments, as their workload likely precluded this. In April of 2006 BLM requested written concurrence from the USFWS that the proposed grazing decision for sheep grazing (and the other grazing decisions) is within the scope of the project description and analysis of the 2006 biological opinion

3. Consultation, Coordination, and Cooperation (CCC)

Consultation, Coordination, and Cooperation with Affected Interests groups, Interested Public groups, and other Government Agencies has taken place from the spring of 2004 through the present in the summer of 2006. This environmental assessment was not being worked on in 2005, therefore, no CCC is recorded for that year. The Affected Interest group consisted primarily of sheep permittees and no responses have been forthcoming from them. Government agencies included the US Fish and Wildlife Service, the California Department of Fish & Game, and the California State Lands Commission. To date, only the CDF&G has responded and that was to individual specialists who had specific questions. The CDF&G has not responded to the full environmental assessment document. Interested public groups to which the document was submitted included environmental groups and a few individuals. Initially, the Desert Tortoise Preserve Committee, The California Native Plant Society, The Western Watersheds Project and The Center for Biological Diversity responded with comments. However, as of the April 2006 mailing, only the Western Watersheds Project and the Center for Biological Diversity have responded.

H. Relationship to Statutes, Regulations, and Plans

1. State Historic Preservation Office Protocol Amendment for Renewal of Grazing Leases

In August, 2004 the State Director, California Bureau of Land Management, and the California State Historic Preservation Officer (SHPO), addressed the issue of the National Historic Preservation Act (NEPA) Section 106 compliance procedures for processing grazing permit lease renewals for livestock as defined in 43 CFR 4100.0-5. The State Director and the SHPO amended the 2004 State Protocol Agreement Between California Bureau of Land Management and The California State Historic Preservation Officer with the 2004 Grazing Amendment, Supplemental Procedures for Livestock Grazing Permit/Lease Renewal. This amendment allows for the renewal of existing grazing permits prior to completing all NHPA compliance needs as long as the 2004 State Protocol direction, the BLM 8100 Series Manual guidelines (Protocol Amendment F), and specific planning, inventory methodology, tribal and interested party consultation, evaluation, effect, treatment, and monitoring stipulations are followed.

2. Biological Opinion on the California Desert Conservation Area Plan

BLM will insure compliance with the incidental take statement of the biological opinion on the West Mojave (WEMO) CDCA Plan amendment. BLM will immediately report any injuries or mortality to desert tortoises as a result of grazing to the Fish and Wildlife Service. The BLM and USFWS will review the circumstances to determine if any additional protective measures are required. The BLM will compile any instances of take of the desert tortoise due to grazing activities and report annually to the USFWS. If the 12-month level of take is more than three tortoises (pg 176, USFWS B.O. (1-8-03-F-58)) for all allotments in the WEMO CDCA plan amendment areas, BLM will meet with USFWS to determine if re-initiation of consultation is necessary on the grazing aspect of the plan.

CHAPTER 2 PROPOSED ACTION AND ALTERNATIVES

A. PROPOSED ACTION:

This alternative was developed after a review of resource issues and conditions found on 11 sheep grazing allotments. Monitoring requirements, mitigation measures, and permit terms and conditions developed in the resolution of issues will be incorporated into this alternative to minimize potential impacts to resources while continuing to provide forage for livestock grazing.

1. Livestock Numbers, Season of Use, and Land Available to Sheep Grazing:

The livestock numbers and season of use remains the same as established under the No Action or Current Management Alternative. Also, please see “Affected Environment” under the “Livestock Grazing” critical element for a more thorough discussion pertaining to the grazing management strategy being employed.

In the eleven sheep allotments discussed in this EA there are approximately 446,495 acres of public land available for sheep grazing under the proposed action. Approximately 83% or 371,131 acres is non-critical desert tortoise habitat available for sheep grazing, and 8,361 acres or less than 2% is critical desert tortoise habitat available for sheep grazing. The proposed action formally removes 127,714 acres of public land of critical habitat from grazing. This removal is comprised of public land now found within the Fremont-Kramer DWMA. Furthermore, 32,058 acres of non-critical desert tortoise habitat in Walker Pass Common will be formally removed from sheep grazing by the retirement of the livestock stock driveway.

Table 2A summarizes the status of public land designated as non-critical tortoise habitat and the status of public land designated as critical desert tortoise habitat that is or is not open to sheep grazing under the proposed action.

Table 2A: Desert Tortoise Habitat (Acres) within Sheep Allotments on BLM Land				
Allotment Name	Total BLM land Open to Grazing under proposed action	<u>NON-CRITICAL</u> Habitat open to grazing in Proposed Action	CRITICAL Habitat open to grazing in Proposed Action	CRITICAL & NON CRITICAL Habitat removed from grazing in Proposed Action
Antelope Valley	7,158	0	0	0
Bissell	5,596	2,360	0	0
Boron	10,868	10,868	0	0
Cantil Common	203,567	197,371	6,196	Critical Habitat removed: 115,496
Hanson Common	16,840	2,747	0	0

Lava Mountain	20,902	18,737	2,165	0
Monolith-Cantil	10,825	10,825	0	Critical Habitat removed: 12,218
Rudnick Common	102,000	60,040	0	0
Spangler Hills	68,183	68,183	0	0
Walker Pass Common	0	0	0	<u>Non</u> Critical Habitat removed: 32,058
Warren	556	0	0	0
Total Acres	446,495	371,131	8,361	Critical = 127,714 Non-Critical = 32,058

2. Grazing Prescriptions Affecting Livestock Management:

The grazing prescriptions that follow are the Proposed Action and define how sheep grazing will be conducted.

A. WEMO Provisions Applicable to Sheep Allotments; and Biological Opinion Terms and Conditions Applicable to Sheep Allotments.

The following grazing prescriptions are from WEMO: (2.2.5.5) Sheep Grazing Within All Allotments, (2.2.5.6) Sheep Grazing Within the MGS Conservation Area, and (2.2.5.7) Sheep Grazing Within DWMA's (see WEMO pages 2-130 through 2-133). The prescriptions listed below reiterate the prescriptions listed in the F&WS Biological Opinion for the California Desert Conservation Area Plan [West Mojave Plan] (6840(P) CA-063.50) (1-8-03-F-58), pages 26-28.

Grazing prescriptions delineated in the Biological Opinion for Ephemeral Grazing in the California Desert District (6840 CA-932.5) (1-8-94-F-16) (see No Action Alternative) are still applicable where they are not superseded by prescriptions listed below.

From WEMO, section 2.2.5.5: Sheep Grazing Within All Allotments

- a. Turnout of sheep in all allotments would not occur until 230 pounds (air-dry-weight) per acre of ephemeral forage is available. The lessee would be required to remove sheep from the area or the entire allotment if production falls below 230 pounds per acre. This prescription is not applicable to those allotments that authorize sheep use of perennial forage. (LG-20, page 2-130)
- b. Following the removal of lambs, when multiple sheep bands are typically combined, there would be no more than 1,600 adult sheep in a combined band. (LG-21, page 2-130)

c. Cantil Common, Bissell, Boron, Monolith-Cantil, Spangler Hills, Lava Mountain, and Rudnick Common Allotments are wholly or partially outside of DWMAs, but have significant high quality desert tortoise habitat. Grazing use in these allotments would continue until the lessee(s) voluntarily relinquishes the grazing lease. It is understood that all lessees of Common allotments (as opposed to any one lessee) must agree to voluntarily relinquish all grazing use on the allotment before the action would be implemented. (LG-22, page 2-130)

Note: Cantil Common, Bissell, Boron, Monolith Cantil, Spangler Hills, Lava Mountain, and Rudnick Common Allotments have been identified for voluntary relinquishment based on their value as desert tortoise habitat. Voluntary relinquishment may be requested by the lessee. The Bureau would complete a site specific environmental document to determine whether or not to accept the relinquishment.

Other sheep allotments not identified and not so designated in WEMO are Hansen Common, Antelope Valley, Warren, and Walker Pass. These allotments would require a plan amendment to make these allotments available to accept a request for voluntary relinquishment.

From WEMO, section 2.2.5.6: Sheep Grazing Within the MGS Conservation Areas

d. To avoid competition between sheep and the Mohave ground squirrel once the ephemeral forage is no longer available and both species rely on perennial forage, all sheep would be removed from the Mohave Ground Squirrel Conservation Area when ephemeral plants are no longer the primary forage being utilized by sheep.

Sheep grazing would be removed from those portions of the Mohave Ground Squirrel Conservation Area when the species-specific, maximum utilization levels set forth in the Table below are met. Percentages in the third column refer to the percentage of the year's current perennial growth that may be consumed before sheep would be removed from the allotment or portions thereof. (LG-24, page 2-131)

COMMON NAME	SCIENTIFIC NAME	MAXIMUM UTILIZATION
Winter Fat	Krascheninnikova lanata	30%
Spiny Hopsage	Graya spinosa	25%
Four-winged sagebrush	Atriplex canescens	25%
Shadescale	Atriplex confertifolia	25%
Allscale	Atriplex polycarpa	25%

From WEMO, section 2.2.5.7: Sheep Grazing Within DWMAs

e. Boundaries would be modified in the following allotments so that areas within DWMAs would no longer be available for sheep grazing: Lava Mountain and Monolith-Cantil. Consistent with the 1994 biological opinion, small portions of Cantil Common Allotment would continue to be grazed within a DWMA, however, sheep use would not occur elsewhere in the DWMA.

Sheep grazing use would be authorized in the portion of the DWMA in the Cantil Common Allotment under the following conditions and those conditions summarized in Appendix O (of WEMO):

1. urnout of sheep would not occur until 350 pounds (air-dry-weight) per acre of ephemeral forage is available. The lessee would be required to remove sheep from the area of the allotment if ephemeral forage production falls below 350 pounds per acre. T
2. he last day of sheep use would be June 1. T
3. atering and loading and unloading would occur at established previously disturbed sites. (LG-27, pages 2-132, 2-133) W

B. Other Management Prescriptions

- f. All observations of injured or dead desert tortoises made by the Sheep operators or their agents will be reported to the local BLM office as soon as reasonably possible.
- g. All livestock handling sites (loading, unloading and lamb shipping) will be watered down upon leaving the site. Sufficient water needs to be applied to allow for surface penetration and infiltration to at least ½ inch.
- h. Under this alternative, the livestock stock driveway is being retired. The vast majority of operators now truck their sheep to summer grazing grounds. Also, over the past 15 years, the Owens Valley has populated to such a point, it is virtually impossible to physically trail sheep through the maze of private lands and fencing.

3. Range Improvements

Cantil Common Allotment is the only sheep allotment with range improvements. It has 15 developed springs, wells, and water storage structures. Sheep Springs is the only spring and storage structure that is currently functioning and is used by sheep. This spring and storage also provides water to the local wildlife through modifications completed and actively maintained by members of the local Quail Unlimited organization. The wells are not functioning as designed due to vandalism, and are in the process of being retired as range improvements. The majority of retired wells are being converted into groundwater monitoring wells. (See Appendix 4).

At Sheep Spring the BLM is proposing to fence off the old historic concrete watering troughs to exclude sheep and allow for wildlife use only. Water will be pumped from the existing storage tank and sheep will be watered from portable troughs supplied by the permittee. The storage tank will be covered to minimize evaporative water loss.

The range improvements in portions of Rudnick Common, Hansen Common, and Walker Pass Common where sheep are potentially grazed are not included in this discussion because they were built for cattle management and used by cattle. All supplies for the care and watering are carried with the sheep operation as they travel throughout the year. These range improvements will be discussed in separate environmental assessments relative to cattle grazing for each allotment.

4. Measures to Achieve or Maintain Standards (Terms and Conditions of Permit)

Terms and Conditions:

The terms and conditions of the permits/leases function to achieve or maintain Rangeland Health standards. The terms and conditions are included in permits or leases and are listed in the No Action alternative.

Proposed Guideline: The following guideline is used to maintain and/or improve rangeland health standards

1. The permittee/lessee will place portable water troughs and supplements a minimum of 1/4 mile from any natural water source such wetlands, riparian areas, and springs, except for the one time per season, sheep water at Sheep Spring.

5. Monitoring

Monitoring of sheep allotments would continue as described in the No Action Alternative. BLM will continue to collect ephemeral production data and complete weekly monitoring of all sheep operations actively grazing BLM lands.

The BLM will initiate and complete a cultural study within the Last Chance Canyon National Register District (LCCNRD) to assess impacts of sheep grazing on potential cultural sites. See Chapter 3, section D, B-2 and Appendix 9.

6. Regional Rangeland Health Standards and Guidelines for Livestock Management

The Regional Standards for Public Land Health and Guidelines for Livestock Management were approved under the West Mojave Plan in March 2006. Implementation of the standards and guidelines cannot occur until the Secretary of the Interior approves them. Until that time, the nationally developed fallback standards and guidelines (see No Action Alternative) would continue as the basis for public land health. These Regional Standards and Guidelines are listed in Appendix 7. Rangeland Health inventory studies will be conducted and a Determination made, prior to the renewal of the next grazing permit/lease.

B. NO ACTION ALTERNATIVE:

The No Action alternative consists of authorizing ephemeral sheep grazing on 11 allotments, under sixteen grazing permits and leases under BLM's existing authorities that were in effect prior to approval of WEMO plan in March 2006, including authority to authorize grazing under the Appropriations and Act (PL 106-113). Each new permit and lease would be for a term of ten years and include those pre-existing Terms and Conditions as in the expiring permit or lease, see below. These new grazing permits/leases would continue to include the terms and conditions stated in the Biological Opinion for Ephemeral Sheep Grazing in the California Desert District (6840 CA-932.5) (1-8-94-F-16). In addition, stipulations directed by existing decision or through an existing agreement and referenced in the expiring permit/lease would also be included in these grazing permits/leases, including maintaining National Fallback Standards and Guidelines for rangeland health. Table 3A

outlines the number of bands of sheep and numbers of AUMs as they have occurred over the past 13 years.

Under this alternative, the Livestock Stock Driveway through Walker Pass is available to trail sheep. Although ephemeral sheep trailing is possible under this alternative, only on a rare occasion does it actually occur, in fact, over the past fifteen years, other than issuing five trailing permits (one permittee), no ephemeral trailing has occurred. It is anticipated only very infrequent ephemeral sheep trailing will occur in the foreseeable future.

1. Livestock Numbers, Season of Use and Land Available to Sheep Grazing:

For the eleven sheep grazing allotments in the Ridgecrest Field Office Area the AUMs allotted to the permittees are based upon suspended use. The California Desert Conservation Area (CDCA) Plan of 1980 recognized the forage base for domestic sheep grazing were annual plants and ephemeral in nature, converted the active perennial AUMs in the allotments to suspended use AUMs. These AUMs were to be utilized under favorable ephemeral situations when spring rains brought about the annual plant production. The suspended AUMs are used to establish each permittee's grazing preference and this in turn establishes the number of bands of sheep each operator may graze. Please see "Affected Environment" under the "Livestock Grazing" critical element for further explanation.

Under this alternative, there are approximately 606,267 acres of public land available for sheep grazing. Approximately 67% or 405,098 acres, is designated as non-critical desert tortoise habitat available for sheep grazing, and 136,075 acres or nearly 22%, is designated as critical desert tortoise habitat potentially available for sheep grazing. This No Action alternative does not formally remove public land that is designated as critical tortoise habitat found in the Cantil Common and Monolith Cantil Allotments from being grazed. Much of this land, in both allotments, has not been grazed since the mid-1980's when the desert tortoise was listed as a threatened species. Furthermore, the livestock stock driveway on Walker Pass Common allotment would remain open for potential use. This driveway is comprised of 32,058 acres of non-critical desert tortoise habitat.

2. Grazing Prescriptions Defining Livestock Management

The grazing prescriptions listed below are currently in effect and have defined the practice of ephemeral sheep grazing in the California Desert District since 1994. They are found in the USFWS Biological Opinion for Ephemeral Sheep Grazing in the California Desert District (6840 CA-932.5) (1-8-94-F-16). These prescriptions are incorporated by reference in Terms and Conditions on permit or lease of the sheep operator and are reiterated in full in the authorizations to graze that the permittee/lessee receives each year that he/she grazes.

a. Turnout of sheep in critical habitat shall not be permitted until after March 20. Turnout in critical habitat shall not occur until 350 pounds (air-dry-weight) per acre of ephemeral forage is available. The Permittee/Lessee shall be required to remove the sheep from the area or the entire allotment if production falls below 350 pounds per acre. The use rate of the forage above 350 pounds per acre shall be five percent in Category I and II habitat.

b. Turnout in tortoise habitat shall not occur until production of 200 pounds (air-dry-weight) per acre of ephemeral forage is available. The lessee shall be required to remove the sheep from the area or the

entire allotment if production falls below 200 pounds per acre. The use rate of the forage above the minimum shall be ten percent.

c. No grazing is authorized except as approved annually by application. All herders shall have a copy of the current use authorization in their possession and a copy posted at the camp site. When trailing, all herders shall be required to have a copy of the current trailing authorization.

d. Sheep bands shall be limited to 1,000 adult sheep with an approximately equal number of lambs.

e. Sheep shall be grazed in a loose pattern.

f. Grazing use shall be limited to one pass, identified by physical evidence that sheep use has occurred, per season at a given location.

g. Bedding and watering sites shall be changed daily, new bedding or watering sites shall be at least one-quarter (1/4) mile from any previous sites. Sheep shall be watered on or adjacent to dirt roads unless an existing open area can be used.

h. Stopping and parking of vehicles, and vehicular camping along routes of travel would be limited to within 50 feet of all routes in multiple-use class "L" and "M" as described in the California Desert Conservation Area Plan.

i. A camp site or camp trailer shall not remain in the same location for more than seven days. A new camp location shall be at least one mile from any previous camp location. Trash and garbage shall be removed from each camp site; no trash or garbage shall be buried at camp site. All sheep carcasses within 300 feet of a road shall be removed and disposed of in an appropriate manner as soon as discovered and/or livestock operator is notified.

j. All sheep shall be watered on or immediately adjacent to dirt roads (within 25 feet) or in areas that have been cleared of shrubs from past uses.

k. Within 15 days of the close of the authorized grazing period, the permittee/lessee shall submit a map delineating areas of daily grazing use within the allotment.

The Ridgecrest Field Office Area also includes the following stipulations as part of the terms and conditions when issuing an authorization to graze

l. The permittee/lessee will have the authority to ensure compliance with protective stipulations for the desert tortoise, ensure that their employees comply with protective stipulations, and be responsible for coordination with the Bureau, the Service, and California Department of Fish and Game. This includes educating field employees concerning the occurrence of the desert tortoises in the grazing areas and the status of the desert tortoise as a threatened species.

m. The herder will utilize, when ever possible, previously disturbed sites for all bedding and watering locations. Do not use designated Recreational camping sites as watering or bedding sites.

n. No motorized/mechanized equipment is authorized within designated wilderness areas without site specific NEPA review and prior written approval from the Ridgecrest Field Office.

o. Addendum to d. not to exceed a total of 2000 animals.

3. Measures to Maintain or Achieve Standards (Terms and Conditions of Permit)

The terms and conditions for grazing listed in permits/leases function as measures to maintain or achieve standards.

The following terms and conditions are included in the permits/leases of all sheep permittees/lessees in the Ridgecrest Field Office Area.

1. Sheep grazing will comply with the 11 stipulations included in the March 15, 1994 Biological Opinion for Ephemeral Sheep Grazing in the California Desert District. (Note: This term and condition is applicable where the 11 stipulations are not superseded by stipulations listed in the Biological Opinion for the California Desert Conservation Area Plan [West Mojave Plan] (6840(P) CA 063.50) (1-8-03-F-58)).

2. National Fallback Standards will be used. (See Appendix 7, Part II)

4. Monitoring

The rangeland monitoring of the sheep allotments in the Ridgecrest Field Office area would be conducted as it is currently. In years when there is enough winter moisture to consider spring grazing in the desert, ephemeral forage production studies are completed. These ephemeral forage production studies are performed using the Comparative Yield Method (Interagency Technical Reference 1734-4, p116-122). Then weekly, for each active sheep operation, the bands are checked for their location, and the forage production is estimated to ensure minimum production thresholds are maintained.

C. NO GRAZING ALTERNATIVE

WEMO identifies seven of these eleven allotments for voluntarily relinquishment. These seven allotments have been identified as having special-status species that would benefit from voluntary relinquishment. These allotments include Bissell, Boron, Cantil Common, Lava Mountains, Monolith-Cantil, Rudnick Common, and Spangler Hills.

This alternative would not authorize grazing and would initiate a process in accordance with 43CFR 4100 regulations to eliminate grazing and make the allotment unavailable for grazing. If the permittee/lessee requests for voluntary relinquishment of the permit/lease for these allotments at any time during the life of this permit/lease, BLM will review the analysis contained in this EA for the purpose of determining whether to accept such request without preparing an additional NEPA document. If conditions and circumstances remain substantially the same, no further document should be needed.

CHAPTER 3: ENVIRONMENTAL ANALYSIS

A. LIVESTOCK GRAZING

1. Affected Environment

Ephemeral Sheep grazing (the grazing of sheep during the spring of the year when annual plants in bloom) has been occurring within the Ridgecrest Resource area since the mid-1860s. Under ephemeral sheep grazing, the focus is managing the grazing of the annual plants that grow and bloom in the desert during the spring season. Historically, sheep operators timed their season of use according to the spring moisture and vegetation conditions. Because the grazing was so dependent on the ephemeral bloom, the sheep could be on the trail to the desert and arrive as early as late January, or in late years, the operators could delay trailing and arrive in the desert in late April. Typically, the earlier they arrived, the earlier they left. Sheep bands would be trailed from the Central Valley, around Bakersfield area, to the western Mojave Desert. This season of use normally lasted 60 to 90 days, before the sheep bands would continue their trail up Owens Valley and to the summer pastures on the Forest. At the peak use, around 1870, it has been estimated that as much as 1,000,000 sheep grazed and trailed through what is now known as the Ridgecrest Field Office Area (Glenn Harris- Per. Com).

Today, the sheep are no longer trailed to the desert; they are trucked onto the desert and to the summer pastures, utilizing large semi-trucks and unloading at the locations scheduled to be grazed. Sheep grazing in the Ridgecrest Field Office area potentially occurs on 11 allotments (described below).

Sheep allotments in the Ridgecrest resource area do not have specific “livestock numbers” attached to them because they are grazed for ephemeral forage only. Annual grazing authorizations, including the numbers of sheep and their season of use are issued based on annual ephemeral forage production. Permits/leases to graze are issued by the number of “bands” or flocks of sheep an operator wishes to graze. Band size varies from 500 to 1,000 ewe-lamb pairs and averages 800 ewe-lamb pairs. The Animal Unit Months (AUMs) consumed is calculated based on the number of sheep grazing. The California Desert Conservation Area Plan set the standard at 990 pounds of forage per month, and represents that amount of forage a cow and her calf will consume in one month. The Plan also defines one cow/calf pair as equal to five (5) sheep (ewe-lamb pairs). The season of use in the Ridgecrest Field Office area averages 70 days, approximately from March 20th through May 31st, in years when there is enough ephemeral forage production to sustain grazing.

As summarized in the table below, sheep grazing has generally occurred 11 years out of the past 16 years or approximately 69% of the time. The level of use has been ranging from 3609 AUMs to 9141 AUMs, averaging 6142 AUMs during those years sheep grazing was authorized on those allotments with eight or more years of use. This translates to a range of 18,045 ewe-lamb pairs to 45,705 ewe-lamb pairs with an average of 30,710 ewe-lamb pairs.

Table: 3A. Range & Average of Number of Sheep Bands & AUMs Grazed 1991-2006

Ridgecrest Allotments	No. of Years Used, 1991-2006	Range of No. of bands/ Year of Use	Average No. of Bands/Year of Use	Range of No. of AUMs 1991-2003	Average No. of AUMs/Year of Use (1991-2003)
Antelope Valley	3	1-2	2.0	60-164	111
Bissell	10	1-6	3.0	13-683	318
Boron	8	1-3	2.0	58-208	138
Cantil Common	10	14-23	18.0	3055-4447	3680
Lava Mtn	8	1-4	2.0	32-1009	408
Monolith Cantil	10	1-4	2.0	102-499	260
Spangler Hills	9	2-8	3.0	165-1692	775
Warren	9	1-2	2.0	40-99	59
Hansen	8	1-4	3.0	144-504	504
Rudnick	1	1	1.0	654	654
Walker	5	4-6	5.0	269-1668	692

Sheep grazing management is identical through all eleven allotments, and follows the same Terms and Conditions as described in the No Action Alternative. In or around February, each year, the annual ephemeral forage conditions are visually monitored by both, BLM and the sheep operators. Based on the initial level of ephemeral forage production and density, if the sheep operators believe sufficient forage will be available through the season, submit applications for grazing. These applications declare the number of bands and areas of use, and approximate season of use requested. Based on these applications, BLM continues to closely monitor the areas within the allotments and specifically, the areas requested to graze. If, through quantifiable monitoring, forage production reaches a production threshold (formerly >200 lbs/acre, now >230 lbs/acre) and climatic conditions indicate a favorable grazing season to maintain forage production over that threshold, the area of use is identified on a map and provided to the operator and sheep grazing is authorized. These authorized areas of use are specific for each band of sheep or groups of bands, and help to ensure permittee's sheep bands does not overlap other permittee's grazing use area resulting in double pass grazing which is inconsistent with the US Fish & Wildlife Service's Terms and Conditions.

On the first day of grazing, sheep are trucked to the authorized area of use, typically 4 large semi-trucks are used to transport each band, unloaded and are allowed to "settle down" for an hour or so at the unloading spot, prior to initiating grazing. During this period, water is provided to the sheep if conditions warrant. Each band is controlled by a herder and his dog(s) at all times. Each sheep operator provides each herder with a small camp trailer that a camp tender moves periodically to be close to the herder and his band. It is the job of each camp tender (who is typically the foreman overseeing multiple herders and their bands) to move the herder's camp, provide food and supplies for the herder and his dog, and drive the water truck later in the season, when supplemental water is

needed by the sheep. The Camp Tender normally stays in a more permanent Camp where the two vehicles are also staged. All vehicular travel is restricted to existing or designated routes. The herders guide the sheep through the area of designated use, ensuring the band stays together and under control. The sheep customarily graze in a meandering pattern through the use area and are always in a loosely aggregated flock of about 800 ewe-lamb pairs. While the sheep are grazing, the length of time the individual plant in each of the different plant communities is subjected to grazing usually occurs over a period of less than one hour, as the sheep move through the country. This area then, is not grazed for the remainder of that year. Each night, the band (flock) is gathered in a tight group for bedding down. Towards the end of the season when the forage starts to dry up and the sheep can not acquire their water needs through the vegetation, the band (flock) is gathered in a tighter aggregation along existing routes for watering. All sheep grazing is subject to the U. S. Fish and Wildlife Service Biological Opinion 6840 CA-932.5 (1-8-94-F-16) that stipulates the terms and conditions of ephemeral grazing (see No Action Alternative).

At the end of each authorized season, the sheep operators submit to BLM, a map showing the loading, unloading and route of travel as the sheep graze their area of use through the season. In those allotments where private lands are grazed in conjunction with the BLM lands, BLM utilizes these actual use grazing maps to determine percent BLM lands used and bill on a pro-rata basis. Each of the camps display a BLM permit and the herders carry a copy of the authorization with them as they attend the sheep. BLM representatives monitor each Permittee/Lessee's operation on a weekly basis to monitor forage production and compliance with the terms and conditions of their permit/lease.

Ridgecrest Sheep Allotments

(Map of existing Sheep Allotments, see Appendix 1)

Antelope Valley Allotment is an ephemeral allotment consisting of 7,785 acres comprised of 627 acres of private land and 7,158 acres of BLM lands. This allotment has approximately 1353 acres of designated non-critical desert tortoise habitat and no acres of Mohave Ground Squirrel habitat. The allotment is located in southeastern Kern County, California, west of Mojave and U.S. Highway 14. In years of adequate ephemeral forage production, sheep grazing is authorized. Ephemeral forage is found on large flats.

The areas of use within this allotment consist of 30 isolated parcels of BLM lands ranging in size from approximately 13 acres to 640 acres. Sheep graze BLM lands in conjunction with private lands that occur both within the allotment and outside the allotment. This allotment has been used just three years since 1991 and each time the sheep operator spent 100% of his time during the grazing season on public land but the duration of the grazing period was very short ranging from 2 to 10 days (see Appendix 3). Water is hauled to temporary locations along existing roads and is moved as sheep are herded through the allotment.

The Bissell Allotment is an ephemeral allotment consisting of approximately 48,850 acres comprised of 43,254 acres of private land and 5,596 acres of BLM lands. This allotment has 5,596 acres of designated non-critical desert tortoise habitat and no acres of Mohave Ground Squirrel habitat. The allotment is located in southeastern Kern County, California, east of Mojave, south of California City, and north of state highway 58. Water is hauled to temporary locations along existing roads and is moved as sheep are herded through the allotment.

The areas of public land use within this allotment consist of 9 isolated parcels of BLM lands ranging in size from 80 acres to 640 acres. Sheep graze BLM lands in conjunction with private lands that occur both within the allotment and outside the allotment. The sheep operator averaged spending approximately 22% of his time on public land. The amount of time spent on public lands used has ranged from 2% in 1996 to 86% in 2003 (See Appendix 3). Water is hauled to temporary locations along existing roads and is moved as sheep are herded through the allotment.

The Boron Allotment is an ephemeral allotment consisting of approximately 82,855 acres comprised of 72,003 acres of private land and 10,852 acres of BLM lands. This allotment has 10,852 acres of designated non-critical desert tortoise habitat and no acres of Mojave Ground Squirrel habitat. The allotment is located in southeastern Kern County and northwestern San Bernadino County, California, north of state highway 58 and west of U.S. Highway 395. In years of adequate ephemeral forage production, sheep grazing is authorized.

The areas of use within this allotment consist of 25 isolated parcels of BLM lands ranging in size from 20 acres to 640 acres. Sheep graze BLM lands in conjunction with private lands that occur both within the allotment and outside the allotment. The use of public lands has varied over the years. On the average, in the years that there has been grazing, the operator has used public land approximately 24% of the time with usage ranging from 11% in 2004 to 46% in 2003 (see Appendix 3). Water is hauled to temporary locations along existing roads and is moved as sheep are herded through the allotment.

The Cantil Common Allotment is an ephemeral allotment consisting of approximately 555,674 acres. It is comprised of 236,611 acres of private land and 319,063 acres of BLM lands. With the signing of the West Mojave Plan Amendment the allotment has been split into three sections; north, middle, and south (See attached map, Appendix 1). Under the proposed action alternative allotment-wide grazing is permitted on 331,001 acres; in the northern (approximately 220,186 acres) and southern (approximately 110,815 acres) sections. The middle section encompasses 224,673 acres and grazing has not been authorized since the mid-1980's and remains unavailable for sheep grazing under the WEMO plan amendment. This allotment also has 34,744 acres of wilderness in the El Paso Mountain and Golden Valley wilderness areas. This allotment contains 319,363 acres of designated non-critical desert tortoise habitat in the northern and southern sections of which 197,371 acres are on public land. The allotment contains 11,638 acres of designated critical desert tortoise habitat of which 6,196 acres are public land in the northern and southern sections which are subject to grazing under the WEMO plan amendment (WEMO Section 2.2.5.7 (LG-27). Pg. 2-132). There is a small area of Critical Desert Tortoise Habitat open to grazing within the Fremont-Kramer DWMA in the southern section of the allotment located just south of Red Mountain and Atolia, and bounded by highway 395 on the east, Twenty Mule Team road on the south and the Randsburg-Mohave road on the north and west. Grazing within this DWMA area does not occur until, 1; forage production can be maintained at or above 350 pounds per acre, 2; the last day of sheep use being June 1st, and 3; all watering and loading and unloading would occur at established previously disturbed sites (WEMO Section 2.2.5.7, pg. 2-132).

There are 156,314 acres of Mohave Ground Squirrel habitat in the northern and southern sections. The allotment is located in northeastern and southeastern Kern County and northwestern San Bernadino County, California. It is bounded by U.S. Highway 14 on the west, China Lake Naval Air Weapons Station on the north, the Bissell and Boron allotments on the south and sections of U.S. Highway 395 and the Red Mountain-Trona Road on the east.

The middle section was formally made unavailable for livestock grazing under the West Mojave Plan Amendment (WEMO Section 2.2.5.7, pg. 2-132). This large section of the allotment retains the potential for having grazing authorized under the No Action Alternative but is currently being administered as part of Fremont-Kramer Desert Wildlife Management Area (DWMA) with primary focus on the recovery of desert tortoises. This area is bounded by Garlock Road and U.S. Highway 14 on the north and west, extends south of the Rand Mountains to the Randsburg-Mohave Road, and by U.S. Highway 395 on the northeast.

In years of adequate ephemeral forage production, sheep grazing is authorized in the northern and southern sections. Water is hauled to temporary locations along existing roads and is moved as sheep are herded through the allotment. This allotment has been divided into numerous use areas negotiated with the different permittees using this common allotment.

The Hansen Common Allotment is a perennial/ephemeral cattle/sheep grazing allotment. There are 71,976 acres comprised of 37,092 acres of private land and 34,884 acres of BLM land. The use areas grazed by sheep are exclusively used by sheep under ephemeral management, which encompasses approximately 16,840 acres of public lands. In areas of the allotment where ephemeral sheep grazing is authorized, cattle grazing are not authorized. The allotment is located in northeastern Kern County, California. It is roughly bounded on the southeast by U.S. Highway 14, on the south by a short stretch of state highway 58, and on the north by Rudnick Common Allotment. Forage for sheep is found on the alluvial plains on the south and east side of the allotment and on the hillsides from which the alluvial plains descend. The areas of use within this allotment consist of BLM lands intermixed with private lands. Sheep graze BLM lands in conjunction with private lands that occur both inside and outside the allotment. An average percent public land used during the authorized grazing season is 63%. Water is hauled to temporary locations and is moved as sheep are herded through the allotment.

The Lava Mountain Allotment is an ephemeral allotment consisting of 20,902 acres of BLM lands. This allotment has 18,737 acres of non-critical and 2,165 acres of critical desert tortoise habitat. There are 20,412 acres of the Golden Valley Wilderness in this allotment. This allotment contains 20,902 acres of Mohave Ground Squirrel habitat. The allotment is located in northwestern San Bernadino County, California east of the Red Mountain-Trona Road, west of the south range of China Lake Naval Air Weapons Station and north of Cuddeback Dry Lake. In years of adequate ephemeral forage production, sheep grazing is authorized. Grazing within the DWMA area does not occur until, 1; forage production can be maintained at or above 350 pounds per acre 2; the last day of sheep use being June 1st, and 3; all watering and loading and unloading would occur at established previously disturbed sites (WEMO Section 2.2.5.7, pg. 2-132). Water is hauled to temporary locations along existing roads and is moved as sheep are herded through the allotment. Sheep grazing has been significantly reduced since 1994 with the designation of Wilderness. Approximately 10,000 acres within wilderness are not accessible by vehicles, preventing the camp trailers and water trucks from supporting the herder and their bands. The operator can not afford equipping his operation to graze with the use of non motorized/non mechanized equipment. The remaining portions of the allotment are utilized and grazed identically to the other allotments.

The Monolith Cantil Allotment is an ephemeral allotment consisting of approximately 47,554 acres. The original allotment was comprised of land on both the east and west sides of U.S. Highway 395 (see attached map, Appendix 1). Since 1991, when the desert tortoise was listed a threatened species, grazing has not been authorized on the east of highway 395. The area east of the highway consists of approximately 32,815 acres most of which is critical desert tortoise habitat. With the completion of the

West Mojave Plan Amendment this eastern portion of the allotment is administered as a part of the Fremont-Kramer DWMA. Under the proposed action alternative, these 32,815 acres would not be available for grazing.

The remainder of the allotment, on the west side of the highway, has a total of approximately 14,739 acres of which 10,825 acres are public land. The western portion of the allotment consists entirely of both non-critical desert tortoise habitat and land designated as Mohave Ground Squirrel Conservation Area. In years of adequate ephemeral forage production, sheep grazing is authorized west of highway 395. The operator averages roughly 56% of his time grazing on public land and the range of variation is from 27% to 80% (see Appendix 3). Water is hauled to temporary locations along existing roads and is moved as sheep are herded through the allotment.

The Rudnick Common Allotment is a perennial/ephemeral cattle/sheep grazing allotment. There are approximately 241,787 acres comprised of 79,683 acres of non-BLM land and 162,104 acres of BLM land. There are approximately 32,058 acres of designated non-critical desert tortoise habitat and 134,139 acres designated within the Mohave Ground Squirrel Conservation Area. This allotment has 34,744 acres of wilderness in the Bright Star and Kiavah wilderness areas. The allotment is located in northeastern Kern County, California. It is bounded on the south by Hansen Common Allotment, on the southeast by U.S. Highway 14 and Red Rock Canyon State Park, and, on the north and west by sections of the Sequoia National Forest. The eastern pastures of the allotment historically have been used for ephemeral sheep grazing however, there has been no ephemeral sheep grazing since 1993 on the allotment. Sheep grazing could be authorized within the Canyons, Aqueduct, Bird Springs, Jawbone and Dove Springs pastures, approximately 102,000 acres of public lands. Ephemeral sheep grazing would not be authorized within the western pastures, Sheep Troughs, Kelso Valley, Kelso Creek, Pinyon Well, Rocky Point, or Cane Canyon. At the present time the rancher has used his area to graze cattle on ephemeral and perennial forage. If ephemeral sheep grazing is authorized, it would then prevent cattle from grazing that area for that grazing year.

The Spangler Hills Allotment is an ephemeral allotment consisting of 69,141 acres comprised of 11,446 of private land and 57,695 acres of BLM lands. This allotment has 54,143 acres of designated non-critical desert tortoise habitat and 35,137 acres within the Mohave Ground Squirrel Conservation Area. There are 66,866 acres within the allotment designated as the Spangler Hills Off Road Vehicle Open Area. There are also 4,373 acres of the Golden Valley Wilderness in this allotment. The allotment is located in northwestern San Bernadino County, California. It is east of Red Mountain-Trona Road, south of the north range of China Lake Naval Air Weapons Station, west of the south range of China Lake Naval Air Weapons Station, and north of the Lava Mountain allotment. In years of adequate ephemeral forage production, sheep grazing is authorized. Water is hauled to temporary locations along existing roads and is moved as sheep are herded through the allotment.

The Walker Pass Common Allotment is a perennial/ephemeral cattle grazing. There are 96,947 acres comprised of 7,754 acres of non-BLM land and 89,193 acres of BLM land. There are approximately 32,058 acres of designated non-critical desert tortoise habitat and there are 61,783 acres on the eastern side of the allotment that are within the Mohave Ground Squirrel Conservation Area. There are three wilderness areas within the boundaries of the allotment; Kiavah, Owens Peak, and Sacatar Trail. They comprise 65,100 acres. The allotment is located in northeastern Kern County and southwestern Inyo County, California. It stretches from south to north from just south of state highway 178 to Little Lake and is bounded by the Sierra Nevada crest on the west and U.S. Highway 395. Historically, the flats at the base of the mountains have been used for ephemeral sheep trailing. There is a north-south stock

driveway that runs through the area. Sheep were herded to northern pastures along this stock driveway however, since 1998 sheep no longer trail up Owens Valley.

The Warren Allotment is a perennial allotment consisting of 556 acres of BLM land. The allotment is located within designated non-critical desert tortoise habitat, but outside the Mohave Ground Squirrel Conservation Area. Although the Warren allotment is classified as a perennial allotment, it is the ephemeral component that is grazed by the sheep and therefore it is the ephemeral component that is managed by BLM. This allotment has the same Terms and Conditions and grazing strategy as employed in the other ephemeral sheep allotments. The allotment is located in southeastern Kern County, California, northwest of Mojave on section 34 of township 11 north, range 13 west of the San Bernardino Base Meridian. In years of adequate ephemeral forage production, sheep grazing is authorized. Forage is found on rolling flats. This allotment consists of an isolated parcel of BLM land. Sheep graze BLM lands in conjunction with private lands that occur both on adjacent private lands. Water is hauled to temporary locations and is moved as sheep are herded through the allotment.

2. Environmental Consequences

a. Impacts of the Proposed Action:

The proposed action removes 127,714 acres of critical desert tortoise habitat from grazing by sheep in the Monolith-Cantil and Cantil Common allotments. The proposed action also removes 32,058 acres of non-critical desert tortoise habitat that was formerly used for trailing sheep through the Walker Pass Common Allotment. These reductions in acreage translate into a substantial decrease in negative impacts due to sheep on the desert habitat.

If it is required that sheep be removed when their diet shifts from ephemeral forage to perennial forage, and when utilization on key perennial forage species reaches 25-30% there is a distinct possibility that there will be years where sheep operators will have to remove their sheep from the desert before what has typically been the May 31st deadline. The end of May deadline allows them to stay in the desert until grazing leases further to the north in Bishop, California or into Nevada open for grazing. If the diet shift occurs before this time sheep operators will have to remove their herds causing an increase in expenses for finding auxiliary pastures, and trucking the bands of sheep. Furthermore, it puts added stress on their animals diminishing the weight gains that the sheep put on while grazing on the desert. This could narrow their margin of profit.

Evaporative water loss from the Sheep Spring storage tank would be controlled by placing a cover on the tank.

b. Impacts of No Action Alternative

The No Action Alternative would affect grazing operations because it places permittees/lessees in a situation where they would not be in conformance with WEMO or the USFWS Biological Opinion. This increases the potential for unauthorized grazing and adverse administrative actions.

c. Impacts of the No Grazing Alternative

The cancellation of sheep grazing on these allotments would force sheep operators to look for alternative pastures for spring grazing and probably substantially increase the cost of ranching operations.

3. Consultation

None

B. AIR QUALITY

1. Affected Environment

Air pollutants occur as gaseous and particulate matter that is emitted into the air. Air pollutants are very fleeting in the desert due to the constant air movement. Moving air constantly disperses air pollutants from their source and dilutes them. The interaction between pollutants, affects of moisture and sunshine generally modify most pollutants over time. Some form particulates and fall as dry deposition others fall with the rain. The air pollutants don't remain in the area of the source and accumulate over time (ARB 2001a and 2003d, Calkins 1994, DeSalveo 2003, KCAPCD 1994-2004, Ono 2000, Paxton 1993, SCAQMD 1993b and USBLM 1999, 2001 and 2006a). Nearly all of the sheep allotments fall within the Mojave Desert Air Basin. The exception is the northern portion of the Walker Pass Allotment which falls in the Great Basins Valleys Air Basin (ARB 1992, 1993b, 1996 and 2006a and USBLM 2005a and 2006). Air quality throughout the project area is generally good. There are, however, times that portions of the area have not meet air quality standards due to locally generated and/or transported in pollutants. Currently portions of the project area are classified as nonattainment areas for ozone and PM10 under state standards and nonattainment for ozone and nonattainment/maintenance for PM10 under national ambient air quality standards. (ARB 1991, 1996, 2000, 2001a, 2001b and 2006a, GBUAPCD KCAPCD and MDAQMD 1991, GBUAPCD 2003 and 2004, KCAPCD 1994-2004, MDAQMD 1993, 1994, 1995 and 1997, SCAQMD 1993b, USBLM 2005a and 2006a, USEPA 2003e, 2003f, 2003g and 2003h).

Ozone pollutants occur in the area primarily from transport in from the South Coast Air Basin and the San Joaquin Valley Air Basin. An Ozone Attainment Demonstration, Redesignation Request, and Maintenance Plan was prepared which shows that Eastern Kern County has attained the one hour National Ambient Air Quality Standard (NAAQS) for ozone. The USEPA reclassified the area in April 2004. The USEPA recently classified the southern portion of eastern Kern County as a federal nonattainment area for the new eight-hour ozone standard. This ozone nonattainment area includes the southern portion of the Rudnick Common Allotment, the Hansen Common Allotment, the Antelope Valley Allotment, the Warren Allotment, Bissel Allotments, the southwestern portions of the Cantil Common Allotment and the west portion of the Boron Sheep Allotments. Livestock grazing is not identified as an emission source for the ozone nonattainment areas (KCAPCD 1994-2004 USBLM 2005a and 2006a and USEPA 2003f).

Maintenance/attainment plans have been prepared for all of the PM10 planning areas which identify sources of PM10 emissions and control measures to reduce emissions. Livestock grazing is addressed in these PM10 plans. The north edge of the Lava Mountain Allotment, the northeast corner of the Cantil Common Allotment, and the entire Spangler Hills Allotment fall within the Trona PM10 Maintenance Area. The East Kern Stock Driveway, the northwest portion of the Cantil Common Allotment and north portion of the Rudnick Common Allotment fall within the Indian Wells Valley

PM10 nonattainment area. The Inyo County Stock Driveway is within the Coso Junction PM10 Maintenance Area. The south portion of the Lava Mountain Allotment, the southeast edge of the Cantil Common Allotment, the Monolith Cantil Allotment and the east portion of the Boron Sheep Allotment are in the San Bernardino County PM10 Nonattainment Area. The southern portion of the Rudnick Common Allotment, the Hansen Common Allotment, the southwest portion of the Cantil Common Allotment, the west portion of the Boron Sheep Allotment, the Bissel Allotment, the Antelope Valley Allotment and the Warren Allotment are unclassified for PM10 (USBLM 2005a and 2006a). Work by the Mojave Desert Air Quality Management District indicated that all of the livestock grazing in the region account for less than .01% of the PM10 emissions in 1990 (MDAQMD 1994). The California Air Resources Board (ARB) estimates the annual PM10 emissions within the Mojave Desert Air Basin is 81,979 tons (ARB 2006b, c&d). Additional air quality information can be found in the West Mojave Plan EIS.

2. Environmental Consequences

a. Impacts of the Proposed Action

Fugitive dust could occur due to the soil disturbance as a result of the trampling action of the sheep when soil moisture levels are low. Using the inventory in the SIPs (MDQMD 1995) it is estimated that the proposed action would yearly generate 2.85 tons of PM10 in the San Bernardino County nonattainment area, 15.9 tons in the Trona, Coso Junction and Indian Wells Valley Maintenance areas and 7.5 tons in the unclassified areas at maximum expected stocking rates. These emissions would occur in April and May in 6 out of 10 years. Support vehicle use on the access roads will generate small amounts of PM10 emissions throughout the grazing area and could carry soils onto the paved roads which would increase entrainment emissions. PM10 emission levels are addressed in the PM10 SIPs. Ruminant animals emit methane gas which is a precursor emission for ozone. The ozone attainment plan did not identify this source as significant. PM10 emissions as a result of the proposed grazing activities are estimated to be well below the 100 ton de minimus (USEPA 1993) and significant level in any of the PM10 planning areas. Based upon the current estimated of PM10 emissions in the Mojave Desert Air Basin, sheep grazing in the proposed action would account for approximately 0.03% of the total PM10 emissions (ARB 2006b, c & d) in years grazing occurs. Ozone precursor emissions are expected to be minimal. No significant offsite impacts are anticipated. Control measures are included to reduce fugitive dust emissions from the proposed project. The proposed activities don't exceed the de minimus emission levels, are addressed in the SIPs and are exempt from conformity determination (40 CFR Part 93.153 (iii)) which exempts continuing and recurring activities such as permit renewals where activities will be similar in scope and operation to activities currently being conducted. As a result no further conformity analysis or determination is necessary.

Air is a renewable resource because movement constantly bring in new air and atmospheric processes cleanse pollutants out of the air. Large particulates that characterize fugitive sources such as sheep grazing typically fall out quickly. As a result, no irreversible or irretrievable commitment of air resources would result.

b. Impacts of No Action Alternative

Most impacts from the no action alternative would be similar to those in the proposed action alternative. The no action alternative would have more land available to graze and therefore a possibility of more sheep use. It is estimated that the proposed action reduced the grazing area

approximately 25 % with a corresponding decrease in sheep use. Using the inventory in the SIPs (MDQMD 1995) it is estimated that the no action alternative would yearly generate 3.8 tons of PM10 in the San Bernardino County nonattainment area, 21.3 tons in the Trona, Coso Junction and Indian Wells Valley Maintenance areas and 10 tons in the unclassified areas. These emissions would occur in April and May in 6 out of 10 years. PM10 emissions as a result of the proposed grazing activities are estimated to be well below the 100 ton de minimus (USEPA 1993) and significant level in any of the PM10 planning areas. Based upon the current estimated of PM10 emissions in the Mojave Desert Air Basin, sheep grazing in the no action alternative would account for approximately 0.04% of the total PM10 emissions (ARB 2006b, c & d) in years when sheep graze. Ozone precursor emissions are expected to be minimal. No significant offsite impacts are anticipated. Control measures are included to reduce fugitive dust emissions from the proposed activities. The proposed activities don't exceed the de minimus emission levels, are addressed in the SIPs and are exempt from conformity determination (40 CFR Part 93.153 (iii)) which exempts continuing and recurring activities such as permit renewals where activities will be similar in scope and operation to activities currently being conducted. As a result no further conformity analysis or determination is necessary.

Air is a renewable resource because movement constantly brings in new air and atmospheric processes cleanse pollutants out of the air. Large particulates that characterize fugitive sources such as sheep grazing typically fall out quickly. As a result, no irreversible or irretrievable commitment of air resources would result.

c. Impacts of No Grazing Alternative

Air impacts from sheep grazing occur as a result of activities directly associated with the grazing. With no grazing, none of the activities would occur and there would be no emissions associated with sheep grazing and no impacts to air quality. Other emission sources in the area would not be changed.

3. Consultation

The BLM worked closely with the air districts in developing inventories and emission estimates for inclusion in the SIPs. The information developed has had review at the air district, ARB and EPA levels. There is no required consultation unless emissions exceed de minimus levels in federal nonattainment areas. In that case a formal conformity determination would have to be prepared which has a required consultation process. In this case emission levels are considerably below de minimus levels and categorically exempt from conformity determinations.

C. BIOLOGICAL SOIL CRUSTS

1. Affected Environment

The open space between higher plants is not generally bare of all life. Highly specialized organisms can make up a surface community that may include cyanobacteria, green algae, lichens, mosses, microfungi and other bacteria. Soils with these organisms are often referred to as cryptogamic soils and form what is referred to as biological crusts. The cyanobacteria and microfungi filaments weave through the top few millimeters of soil and aid in holding loose soil particles together forming a biological crust which stabilizes and protects soil surfaces. The biological crusts aid moisture retention, fix nitrogen, and may discourage the growth of annual weeds. Below the surface, the soil

flora grows various rhizomes, hyphae and filaments that further bind the soil together. Most of the biological crust organisms make their growth during cool moist conditions. The intermountain region had many-extensive complex crusts. Many of those areas are so fragile that even casual foot traffic can cause extensive damage. Many of the intermountain areas have fine textures soils, cooler climates and summer rains which are conducive to crust development.

As a contrast, the western Mojave desert has coarse-textures soils, high temperatures, little summer rain and very high potential evapotranspiration potential (PET). According to Jane Belnap (2003, 2005) “less stable, coarse-textured soils often support only highly mobile, large filamentous cyanobacteria (such as *Microcoleus* spp.).” She also says (2003 and 2005), “Cyanobacteria heavily dominate crusts of hot desert sites (Sonoran, Mojave and Chihuahuan) where PET is high.” She also indicated that some hot desert sites may not support biological crusts (Belnap 2005). The latest data, Belnap (2003 and 2005) and BLM 2001, indicates that the likelihood is that they would be simple crusts that are highly mobile and quick to recover from disturbance. This is consistent with the health assessments in the Rudnick and Walker Pass Allotments and field observations in the other sheep allotments (Harris 1974-2006). Inventories have not been conducted in the other sheep use allotments. No species specific allotment mapping has been conducted for biological crusts. All data collected has been associated with the rangeland health evaluations and random spot observations.

2. Environmental Consequences

a. Impacts of Proposed Action

Grazing animals can apply compressional and shear forces to the soil. The crust response to these disturbances is highly variable. Moisture and burial are two important factors relating to the degree of impact. With coarse textured sandy soils, moist crusts are better able to withstand disturbances than dry soils (Belnap 2003 and BLM 2001). Many of the biological crust species are not mobile and cannot survive burial. However, as Belnap (2002 and 2005 and BLM 2001) noted, the hot desert crusts are simple crusts that are highly mobile and quick to recover from disturbance. The large, filamentous cyanobacteria can move 5mm per day if it is wet (Belnap 2003 and BLM 2001). Although rain and moist soils occur at the start of the grazing season, grazing in the later part of the spring could reduce the cover of biological crusts, if they are present, because the soils are dry. These simple crusts would likely recover within days once the rain returns. The watering down of the handling facilities (corrals and shipping facilities) would expedite recovery of both, the biological crusts, and the physical crusts on those sites. Because the crusts are simple to nonexistent, site recovery should be such that the impact would be nonsignificant.

b. Impacts of No Action Alternative

The impacts of the no action alternative would be very similar to the proposed action alternative. The difference would be in the amount of area impacted. The no action alternative would allow grazing over a 35% larger area and therefore a larger area would receive the same impacts.

c. Impacts of No Grazing Alternative

Grazing would no longer disturb soil crusts.

Biological soil crusts recover from disturbance over time. The time factor is dependent upon the degree of displacement and soil moisture. In moist conditions partial recovery of the mobile species can occur in days. More complete recovery of a site would occur in a few years.

3. Consultation

None

D. CULTURAL RESOURCES

1. Affected Environment

a. Antelope Valley Allotment

This allotment is located on about 30 isolated BLM public land parcels west of the cities of Mojave and Rosamond. Half of the parcels are in the low foothills of the eastern Tehachapi Mountains, and the others are on the undulating floor of the Antelope Valley. Six cultural resource studies have been completed within the public land parcels associated with this allotment. A total of 980 acres (15%) of the BLM public lands have been surveyed.

Three archeological sites have been recorded within the allotment; two historic rock features; and a small prehistoric midden soil-lithic scatter concentrations, which consist exclusively of silicate debitage. When they were recorded in the 1990s, the site forms did not contain any statements under the *Current Condition* sections that disturbances being caused by livestock grazing were observed. The probability of any such disturbances occurring since then is considered low.

All of these sites have been formally evaluated for eligibility to the National Register of Historic Places (NRHP) and none were determined to be eligible. No previously determined NRHP eligible historic properties occur within the allotment.

b. Bissell Allotment

This allotment is situated to the east of the city of Mojave, and State Highway 58 forms its southern boundary. The terrain is undulating with sporadic desert wash channels and sparse creosote community vegetation occurring over most of it. Much of the 48,000 acres within the allotment is privately owned, with only 5,600 acres being BLM administered public lands. Due to the private ownership pattern, and the lack of BLM undertakings that would require cultural resource investigations, only two such studies have been completed within the allotment. A total of 3,740 acres (66%) of the BLM public lands have been surveyed.

Eleven archeological sites have been recorded within the allotment; four historic can dumps; and seven prehistoric lithic scatter concentrations, almost all of which consist exclusively of silicate debitage. When they were recorded in the 1990s, the site forms did not contain any statements under the *Current Condition* sections that disturbances being caused by livestock grazing were observed. The probability of any such disturbances occurring since then is considered low.

All of these sites have been formally evaluated for eligibility to the National Register of Historic Places (NRHP) and none were determined to be eligible. No previously determined NRHP eligible historic properties occur within the allotment.

c. Boron Allotment

This allotment is situated to the east of both the city of Mohave, and the Bissell Allotment. State Highway 58 forms its southern boundary and US Highway 395 forms its eastern perimeter. The terrain is undulating with sporadic desert wash channels and sparse creosote community vegetation occurring over most of it. Much of the 83,000 acres within the allotment is privately owned, with only 10,900 acres being BLM administered public lands. Due to this overwhelming private ownership pattern, and the lack of BLM undertakings that would require cultural resource investigations, only five such studies has been completed within the allotment. A total of 3,250 acres (30%) of the BLM public lands have been surveyed.

Fifty five archeological sites have been recorded within the allotment; 12 historic can dumps; and 43 prehistoric lithic scatter concentrations, almost all of which consist exclusively of silicate debitage. When they were recorded in the 1990s, the site forms did not contain any statements under the *Current Condition* sections that disturbances being caused by livestock grazing were observed. The probability of any such disturbances occurring since then is considered low.

All of these sites have been formally evaluated for eligibility to the National Register of Historic Places (NRHP) and none were determined to be eligible. No previously determined NRHP eligible historic properties occur within the allotment.

d. Cantil Commons Allotment

With the acceptance of the West Mojave Plan Amendment (2006), this allotment now contains about 331,000 acres of public and private lands divided into a northern and southern section. This allotment involves primarily desert floor environments that are occasionally punctuated by localized uplifted hills and ridges. The northern section takes in part of the Indian Wells Valley, near the city of Ridgecrest, and extends southward across the El Paso Mountains. The southern section extends south from the Randsburg-Mojave Road alignment onto those federal lands in the vicinity of California City that are north of the Boron and Bissell allotments.

Over the past 30 years only ten surface surveys, with about ten other linear surveys for pipeline and electrical transmission routes, involving a cumulative total of about 2,380 acres, have been conducted within the allotment. This amounts to less than one percent of the total acreage within the allotment. Many of these studies occurred within the El Paso and Rand locales and were focused primarily upon historic mining properties. Approximately 150 sites have been formally recorded within the allotment and most are prehistoric in nature. A review of the site records, a 50% sample size, failed to locate any reference to damages being caused to them by livestock grazing practices when they were recorded, and it is believed that this finding would hold true if the other half of the records were to be checked.

Prehistoric site types represented including permanent or seasonal habitation sites, resource procurement and processing sites such as milling stations and stone tool quarries, rock shelters and overhangs, possible stacked rock features, and petroglyphs. The Goler Formations of the El Paso

Mountains, dating to the Paleocene Epoch, just after the demise of the Dinosaurs, contains moderately density mammal fossils beds, which are currently being investigated by paleontologists associated with the Raymond Alf Museum in Claremont, California.

The historic 20 Mule Team Borax Wagon Road, which was determined eligible for the NRHP in 1976, crosses the allotment on a diagonal from the northeast to the southwest corner. The historic Burro Schmidt's Tunnel and Cabin, which is located within the El Paso Mountain sector of the allotment, was listed on the NRHP in 2003.

The allotment also contains the Last Chance Canyon National Register of Historic Places Archeological District (See Map, Appendix 1), and the related Last Chance Canyon Area of Critical Environment Concern (ACEC). The District was listed on the National Register in 1972, and is roughly 70,000 acres in size. The ACEC, which involves Last Chance Canyon proper, and was established in 1980, contains approximately 5,300 acres and contains a concentration of about 50 prehistoric rock shelters, lithic workshops, food processing areas, and seasonal habitation sites. Excavations at two of these sites, CA-KER-250 and CA-KER-261, during the 1980s showed occupation in the area may date back as far as 5000 years ago. The total number of sites within the District is about 75. All were recorded during the late 1960s as part of a graduate studies research survey by students from the University of California in Los Angeles. None of the site records associated with the NRHP District contain any reference to these sites being damaged by livestock grazing.

e. Hansen Common Allotment

This allotment lies generally north of State Highways 58 and west of State Highway 14 in the southeast foothills of the Tehachapi Mountains. The area is part of the Garlock Earthquake Fault zone, and occurs on the first series of eastern foothills that are the product of this tectonic activity. One cultural resource study has been completed within the public land parcels associated with this allotment. A total of 160 acres (1%) of the Allotment's public lands have been surveyed.

A total of three prehistoric archeological sites have been recorded within the Allotment. One is a widely dispersed, but sparse density, lithic scatter of predominately silicate tools and debitage; another was a buried cooking hearth discovered by the excavation for a quake monitoring trench; and the third, CA-KER-515, was recorded in 1974 by Antelope Valley College as a possible occupation site. None of these sites have yet been formally evaluated for National Register status.

When they were recorded, the site forms did not contain any statements under the *Current Condition* sections that disturbances being caused by livestock grazing were observed. The probability of any such disturbances occurring since then is considered low.

f. Lava Mountains Allotment

This allotment is wedged between the Cantil Common allotment to the northwest, the Spangler Hills allotment, in the north, and the China Lake Naval Weapons Station South Testing Range to the east. Much of the allotment is also within the Golden Valley Wilderness Area.

To date, there have been no intensive archeological site surveys conducted within the allotment. This is due primarily to its relationship to the Golden Valley Wilderness Area, and the lack of federal

undertakings that would have required that these types of studies be conducted. There is one previously recorded site within the allotment though. The site is designated as CA-KER-112, but information about it is unavailable.

The Bedrock Spring Archaeological ACEC is located near the northwest corner of the allotment, and the Steam Wells Petroglyph Archaeological NRHP District is located near the allotment's southwest sector. They were established to highlight the protection needs for a concentrated collection of prehistoric habitation midden sites, bedrock mortar and milling slicks, rock shelters with archeological surface remains, and an array of petroglyphs and pictographs that have a high degree of integrity and interpretative values.

g. Monolith Cantil Allotment

This allotment is located to the west of US Highway 395 immediately north of the Boron Allotment, with the southern section of the Cantil Common Allotment forming its western boundary. The terrain is a mix of upland alluvial terraces and incised desert wash channels with the predominate vegetation pattern being creosote bush. The 15,000 acres of the allotment are a mix of BLM administered public lands and large private property parcels.

Due to this private ownership pattern, only one cultural resource study have been completed within the allotment. This was the inspection of a 35 acre dry lakebed in 2002 for a commercial film use of the playa. Nothing cultural was found by this study.

The historic 20 Mule Team Borax Wagon Road, which was determined eligible for the NRHP in 1976, crosses the allotment in the north on a diagonal from the northeast to the southwest.

h. Rudnick Common Allotment

There are 241,800 acres within this allotment, but only 102,000 acre are available for sheep grazing uses. The allotment runs from the State Highway 14 corridor, in the east, up the eastern slopes of the Sierras Nevada, and west into Kelso Valley sector of the Kern River Valley. It encompasses a variety of environmental zones along with a series of riparian canyons. These canyons were used by prehistoric peoples as they moved about making use of seasonally available plant and animal food resources. Historic uses of the locale included ranching, transportation, and water resource development.

Approximately 5,000 acres of the allotment's acreage (5%) has been subjected to cultural resources investigations. These include recent studies by URS Corporation for the two Los Angeles Aqueducts, a statistical sampling by URS of the entire allotment, and a comprehensive survey of the Jawbone OHV Open Area by Ancient Enterprises Inc.

About 220 prehistoric and historic archaeological sites having been recorded within the sheep allotment. Prehistoric site types that occur include permanent and seasonal habitation sites, bedrock milling areas, lithic scatters, and rock art features such as petroglyphs and pictographs. Historic materials include rock walls, foundations, collapsed wood frame structures, abandoned mine shafts and adits, isolated rock cairns, historic trails and roads. A review of these site records, all of which were recorded in 2002-2003, confirmed that there was no references made at the time of their recording that damages to them from sheep grazing were evident.

The historic site, Bandit Rock (also known as Robber's Roost), a prominent rocky uplift in the northeast sector of the allotment, was listed on the NRHP in 1976. The Los Angeles Aqueduct is presently under review for its eligibility for listing on the NRHP, and appears to be an eligible property. None of the features that comprise these two historic property have been adversely effected by sheep grazing activities.

The 155,435 acre Jawbone-Butterbrecht Area of Critical Environmental Concern (ACEC) is located within the Rudnick Allotment. It was established by the California Desert Plan of 1980 to allow management directions specific to the protection of heritage resources. There are geographical locations within the ACEC that are important to the local Kawaiisu Indian peoples for spiritual and religious reasons. The management plan for the ACEC evaluated these concerns in 1982 and determined that the existing uses of the Native communities and livestock grazing are compatible, but the grazing must be limited, or even reduced, in those areas that contain water and riparian vegetation. A primary management requirement for sheep grazing is that the herds will avoid and stay away from these types of locations. As long as this requirement is maintained, effect to heritage resources should not occur.

i. Spangler Hills Allotment

This allotment is sandwiched between the northern Cantil allotment segment in the west, the Lava Mountain allotment to the south, and the China Lake Naval Weapons Station testing range to the east. Much of its 57,000 acres of BLM public lands is also closely associated with the Spangler Hills OHV Open Area, a heavily used public recreation area. Only 2,020 acres (4%) of public lands in the allotment have been surveyed professionally for the occurrence of archeological sites.

Two major cultural resource studies within the allotment were recently completed in 2003 by Ancient Enterprise Inc. of Santa Monica. These studies were also the first systematic survey efforts within the allotment. Field crews from Ancient Enterprises covered 2,000 acres and recorded 43 prehistoric sites, mostly surface lithic scatters, including some that could possibly be over 5,000 years old.

The site recordation forms for this group of sites do not contain any statements under the *Current Condition* section that disturbances being caused by livestock grazing were observed. Given that 90% of the site records do mention that there is on-going disturbances to these sites by motorized off highway vehicles, the probability of any disturbances being caused by grazing is considered low. None of these sites have been formally evaluated for their eligibility for the National Register, but they are all being managed as if they are in fact eligible until they can be evaluated. There are no previously determined NRHP eligible historic properties occurring within the allotment.

The Christmas Canyon Area of Critical Environmental Concern is located at the east side of the Allotment. The primary feature of this prehistoric use area are very large, and very dense, lithic quarrying and reduction scatters composed almost exclusively of silicate rocks (as contrasted to obsidian) that occur on older shoreline terraces formed by the Pleistocene Lake Searles, which desiccated approximately 5-4,000 years ago. This concentration of sites could thus, possibly, date to the time when the last ice age was ending.

While not yet formally recorded as an archeological site, there are a number of petroglyphs occurring within the Poison Canyon narrows along the northern boundary of the allotment. State Highway 178

also passes through the canyon at this point. However, there has been no observed livestock effects to these panels, most likely due to their close proximity to a busy highway route.

The Bedrock Spring Archaeological ACEC is located in the extreme southwest corner of the allotment. It were established to highlight the protection needs for a concentrated collection of prehistoric habitation midden sites, bedrock mortar and milling slicks, rock shelters with archeological surface remains, and an array of petroglyphs and pictographs that have a high degree of integrity and interpretative values.

j. Walker Pass Common Allotment

The allotment is situated on the east slope of the Sierras, extending from the crest at Walker Pass east to the valley floor and State Highway 14. It contains a series of riparian canyons, orientated generally east-west, that were used during the prehistoric era by groups moving up and down the canyons making use of seasonally available plant and animal species. In addition, the Walker Pass area was an important historic transportation corridor. Approximately 580 acres (2%) of the allotment's public lands has been surveyed for cultural resources.

Seventy archeological sites have been recorded within the allotment. Almost all of them were recorded by a 2003 inventory of the two City of Los Angeles, Department of Water and Power, Los Angeles Aqueducts, (LADWP) and their related access road systems. Slightly more than half of these sites, 55%, are historic and are associated with the construction of the two aqueducts. The remaining 45% are prehistoric sites containing midden soils, bedrock mortar pits, rock rings, rock art, and lithic scatters of varying density levels and materials.

When they were recorded in 2002-2003, except for five sites, none of their recordation forms contained any statements under the *Current Condition* sections that disturbances being caused by livestock grazing were observed. However, five sites were reported as having been previously so effected. These five sites are identified as INY-2190, INY-3375, KER-1594, KER-5948, and MT-27. These sites occur in locations frequently used to corral cattle, both at the start of the grazing season and at the close. While effects caused by cattle are evident, these five sites are all to the west of the grazing areas proposed for sheep. The probability of any additional disturbances from sheep grazing occurring to these five sites is considered low because of the intervening distances between the two.

All of the sites identified by the 2003 LADWP study are currently undergoing formal evaluation for eligibility to the National Register of Historic Places (NRHP). Of the five sites noted as having experienced previous effects by cattle grazing, only one, designated MT-27, is tentatively evaluated as not being eligible for the NRHP. No other previously determined NRHP eligible historic properties occur within the allotment.

k. Warren Allotment

This allotment comprises just a single parcel of 556 acres located to the northwest of the city of Mojave. The section is part of the flat floor of the northern Antelope Valley just east of the foothills of the Tehachapi Mountains. Only one cultural resource survey has been conducted within the allotment and this was in 1992 for an anemometer tower, which involved only one acres of ground. No cultural resources are known to occur within the allotment boundary. However, until the area is better

investigated, the possibility does exist that cultural resources, either prehistoric or historic, could occur within its boundary.

2. Environmental Consequences

a. Types of Potential Effects Upon Cultural Resources

Sheep grazing and herding practices could, under certain environmental conditions, have effects upon historic properties. The placement of watering troughs, over-night bedding locations, and sheep management facilities, such as corrals, can effect archaeological resources that might also occur at those same locations. The primary cause of effects could come from the trampling and lateral movement of artifacts by the hooves of the animals. The deposition of waste droppings could potentially affect future scientific analysis of prehistoric materials by introducing elevated levels of organic materials, and the inattentive bunching of sheep can increase the potential for severe effects to occur.

b. Impacts of Proposed Action Alternative

The approval of this alternative will not have any adverse effects upon the five historic properties that are presently listed on, or previously determined eligible for, the National Register of Historic Places. Presently, none of the 550 recorded archeological sites within the allotments have any documented references to impacts being caused to them by sheep grazing at the time they were recorded.. If adverse effects should become known at any time in the future, then the implementation of the Statewide Heritage Protocol's Supplemental Procedures, Standard Protective Measures, would be used to prevent and alleviate any developing adverse effects that might be caused by the implementation of this alternative, especially those provisions that recommend simple avoidance by sheep herds of cultural resources sites and locations. If implementing these Standard Protective Measures would not alleviate the specific adverse effect, then formal consultation with the California Office of Historic Preservation will be initiated to resolve the conflict.

c. Impacts of the No Action Alternative

The Statewide Heritage Protocol's Supplemental Procedures for Livestock Grazing Permit Renewals provisions becomes activated only upon the administrative renewal of a grazing allotment permit. If selected, this alternative would not allow the modification of the sheep grazing permits to incorporate the Supplement's provisions, especially the Standard Protective Measures for cultural resources, into the terms and conditions that govern how, when, and where sheep grazing will make use the allotment.

d. Impacts of the No Grazing Alternative

Implementation of this alternative would eliminate further effects to cultural resources from being caused to them by sheep grazing.

3. Consultation

Consultation with the State Historic Preservation Officer is required as outlined in the grazing appendix to the State Heritage Protocol Agreement, and will take the form of annual reports on the

progress of cultural resource inventory and monitoring, and what measures were taken to avoid, eliminate, or mitigate impacts to National Register eligible cultural resources.

This consultation was initiated in 2005, and will be conducted during the last two months of each year thereafter.

Consultation with five Native American Tribes of the region was undertaken in the summer of 2006. These Tribes were: Bishop Paiute, Big Pine Paiute, Ft Independence Paiute, Lone Pine Paiute-Shoshone, all in the Owens Valley, and Timbisha Shoshone of Death Valley. Letters requesting comments were submitted to these Tribes in May 2006 with a requested respond day in mid-June 2006. While responses were not received, consultation efforts with these Tribes will be continued as part of BLM's government to government responsibilities.

E. ENVIRONMENTAL JUSTICE

1. Affected Environment

The grazing allotments being analyzed are located in rural San Bernardino and Kern Counties. The rural areas of these counties are typically occupied by moderate to low-income households. The permittees/lessees that hold the grazing permits/leases for the allotments being analyzed typically have moderate income.

No minority communities or low-income communities are located within or adjacent to the proposed project areas. Further, the proposed action would not impact the Native American's distinct cultural practices or result in disproportionately high or adverse human health or environmental effects on minority communities.

2. Environmental Consequences

a. Impacts of Proposed Action

The implementation of the proposed action would have an affect but not a disproportionate affect on low-income or minority populations living on or near the allotments being analyzed.

The grazing of livestock in rural San Bernardino and Kern Counties has been a common practice for over 100 years.

b. Impacts of No Action Alternative

Same as proposed action

c. Impacts of No Grazing Alternative

Under the no grazing alternative there would be an affect but not a disproportionate affect with respect to low-income or minority populations. The loss of livestock grazing in rural San Bernardino and Kern counties could result in the loss of seasonal employment to a very small component of low-income or minority populations.

F. FARMLANDS, PRIME OR UNIQUE

1. Affected Environment

The proposed action and alternatives would have no affect on unique or prime farmlands because there are no lands so designated in the allotments.

G. FLOOD PLAINS

1. Affected Environment

Flood plains are associated with nearly all of the sheep allotments. Most of the flood events are a result of large summer thunderstorm events. These large events tend to be localized events which may drop over 4 inches of rain in a short time (less than an hour). Nearly all of the canyons have associated washes and have produced large floods in the recent past. Alluvial fans occur at the mouth of nearly all drainages. The very large events may have a return interval of 25-50 years. Flows of 28,000 to 100,000 cfs (cubic feet per second) have occurred in drainages within the allotments in the last 75 years. The larger flow events terminate into one of a series of terminal dry lakes scattered across the region. Floods closed Highway 14 in 1997 and damaged many homes along Kelso Creek in 1984. In the Little Dixie Wash, which drains the south western Indian Wells Valley, the projected 10 year storm is 9,000 cfs. In 1984 this drainage along with other smaller ones in the valley caused in excess of 35 million dollars in flood damage in Inyokern, Ridgecrest and the Naval Air Weapons Station. Cars have been washed off Highway 14 in the last twenty years and a number of fatalities have resulted Kern County 1996 & 2000). These large flow events are a result of high intensity storms and are little enhanced by cultural practices in the watershed.

2. Environmental Consequences

a. Impacts of Proposed Action:

The proposed action would not result in appreciable impacts to flood plains. There is no proposed construction of range improvements in flood plains. There are no existing facilities that would be susceptible to damages from floods or would influence future flood events. Flood events where the flows exceed bank full flows and move onto the floodplain generally occur as a result of large summer thunderstorms where the cultural practices such as grazing have little influence on flood size or damage.

b. Impacts of No Action:

Similar to the proposed action.

c. Impacts of No Grazing

Similar to the proposed action.

H. INVASIVE, NON-NATIVE SPECIES

1. Affected Environment

Peter Rowlands et al. (1982) in Brooks (1998) notes that alien species comprise a relatively small portion of the flora in the deserts. They indicate that there approximately 1836 species of vascular plants in the California portion of the Mojave Desert of which 156 (9%) are alien to the region. This compares to the global average of 16% alien plants (Rowlands et al. 1982). Additional background information on invasive, non-native species is located in Appendix 10. Invasive, non-native species occur in all of the sheep allotments. These species can be classified into three general groups.

The first group is invasive, non-native plants which are common across the landscape. Species in this group are common across the Mojave Desert and many are common in surrounding bioregions as well. These species occur in most portions of all of the sheep allotments and combined they generally constitute less than 20 % of the total cover. Species in this group include downy brome(cheat grass) (*Bromus tectorum*), red brome grass (*Bromus (rubens) madritensis Ssp. rubens*), Mediterranean grass (*Schismus arabicus and barbatus*), filaree (*Erodium cicutarium*), tansy mustard (*Descurania sophia*). None of the species in this group are classified as noxious weeds.

The second group of invasive, non-native species is also common in the desert, but are more restricted in the habitats they occupy. For the most part this group is limited to road sides, some washes and other highly modified sites where there is little competition from other plants and water concentrates to provide late season soil moisture. Adequate soil moisture in the late spring and early summer is important for these species. These species occur along paved road corridors through and adjacent to all of the sheep allotments except the Lava Mountain Allotment. The Lava Mountain allotment is totally within the Golden Valley Wilderness and has no roads. Road maintenance practices and equipment play a strong role in maintaining the site disturbance and in spreading seeds of these species. Major species in this group include Moroccan mustard (*Brassica tourenfortii*), Mediterranean mustard (*Hirschfeldia incana*), black mustard (*Brassica nigra*). None of these species are listed noxious weeds.

The third group of invasive non-native species is species which occur as a series of specific infestations at specific sites. All of these species are listed noxious weeds and have active control efforts in place. A number of these species occur in the region, but only salt cedar (*Tamarix* spp.) occurs within the sheep grazing area. Salt cedar occurs within three of the sheep grazing allotments. The Cantil Common Allotment has five small sites of less than one acre each. The Rudnick Common Allotment has two sites within the sheep grazing area. One is one acre the other is two acres. The Walker Pass Allotment has two one acre sites and one two acre site. None of these infestations are the result of or affected by livestock grazing.

2. Environmental Consequences

a. Impacts of Proposed Action

Sheep grazing could influence invasive, non-native species several ways. These possible influences could include transporting new species in from other regions, moving seeds from infested sites within the allotment to non infested sites and by modifying sites to be more favorable to invasive, non-native species germination/growth. The movement and introduction of new species as a result of sheep

grazing has a low probability although the sheep are shipped from areas which may have invasive, non-native species populations, the risk is small because the sheep would be shipped prior the seed set on the invasive, non-native species. In addition, the sheep are typically shorn before they are shipped reducing the opportunity for the sheep to transport seed in the wool. Most existing invasive, non-native species are widespread and have been for a long time. Species such as filaree were noted as widespread in 1844, prior to livestock grazing. Salt cedar is of limited range, but it is not spread by livestock grazing. Current livestock management is unlikely to cause any additional spread as most of these species occur over most of the region already. Sheep grazing can modify high intensity use sites to provide a more favorable environment for the invasive, non-native species. Observations at sites where animals have been held in a corral have noted a dominance of the more weedy species from the surrounding area and clipping studies have noted higher biomass productions on the disturbed site the following year. The current management calls for the use of previously used sites. This would limit the development of new sites. The introduction of invasive, non-native species, especially noxious weeds is very difficult if not impossible to reverse if not detected early. For that reason, the integrated weed management plan includes detection and prevention plans (BLM 2006b).

b. Impacts of No Action Alternative

Same as Proposed Action

c. Impacts of No Grazing Alternative

There would not be any expected changes in vegetation composition on an overall basis (Sanders (1992) and Johnson and Meyeux (1992)). Some high impact type sites may increase their perennial cover. Standing biomass levels could increase. Based on current literature and observations of areas which are not grazed, selecting the no grazing alternative would not be expected to result in any appreciable changes in the occurrence of current invasive, non-native species.

3. Consultation

None

I. NATIVE AMERICAN CONCERNS

1. Affected Environment

The majority of the area encompassed by the eleven sheep allotments was inhabited at historic contact by the Kawaiisu Indians. The Kawaiisu, who have cultural affinities with both the California and Great Basin regions, occupied an area that included the Tehachapi Mountains, portions of the Kern River Valley, and the Walker Pass area. Other areas frequented by them, included the Antelope Valley and eastern Sierra Nevada canyons, such as Jawbone, Grapevine, and Sand. While not a federally recognized tribe, the Kawaiisu are recognized by the State of California, and a number of people of Kawaiisu descent still live the in Tehachapi and Kern River Valley area.

The Western Shoshone occupied territory within the northern Mohave Desert, with the Spangler Hills, Lava Mountain, and Cantil Common allotments falling on the western fringe of their territory. The Timbisha Shoshone Tribe of Death Valley is a federally recognized tribe that represents the interest of these Native peoples.

2. Environmental Consequences

a. Impacts of Proposed Action Alternative

Consultation with Native Americans has been conducted to determine whether or not there may be significant effects and impacts to tribally important locations and resources associated with the Proposed Action. No specific information was offered though by the five Tribes.

b. Impacts of No Action Alternative

Consultation with Native Americans has been conducted to determine whether or not there may be effects and impacts to tribally important locations and resources associated with the No Action Alternative, which represents the current allotment management practices. No specific information was offered though by the five Tribes.

c. Impacts of No Grazing Alternative

Cessation of grazing would indeed result in the cessation of direct effects and impacts that might be occurring to important Tribal locations and resources. This alternative would also eliminate an activity that has been considered a continuation of the historic use of the area.

3. Consultation

Consultation with five Native American Tribes of the region was undertaken in the summer of 2006. These Tribes were: Bishop Paiute, Big Pine Paiute, Ft Independence Paiute, Lone Pine Paiute-Shoshone, all in the Owens Valley, and Timbisha Shoshone of Death Valley. Letters requesting comments were submitted to these Tribes in May 2006 with a requested respond day in mid-June 2006. While no responses were received back, consultation efforts with these Tribes will be continued as part of BLM's government to government responsibilities.

J. RECREATION

1. Affected Environment

The diverse terrain and environments found on the public lands in these allotments provide a wide range of outdoor recreational opportunities and experiences including backpacking/hiking, horseback riding, mountain biking, camping, hunting upland game birds as well as large mammals, nature study, birding, ATV and motorcycle riding, four-wheel driving, rock hounding/mineral collecting, photography and target shooting. Also within the Rudnick Common allotment is roughly 30 miles of the Pacific Crest Trail (PCT), a hiking and equestrian use only trail that stretches for more than 2,000 miles from the Mexico border all the way to Canada. This hiking trail receives hundreds of visitors annually some just out for a day hike to others that plan on hiking the whole 2,000 miles. Additionally the El Paso Mountain and Golden Valley Wilderness areas are within the Cantil Common, Spangler Hills, and Lava Mountain allotments. Refer to the Wilderness section for details.

Jawbone Canyon and Dove Springs Open areas are located within the Rudnick Common allotment while the Spangler Hills Open area is within the Cantil Common and Spangler Hills allotments. These

designated open areas are the three most popular off-highway vehicle recreation areas managed by the Ridgecrest Field Office. Annual visitation to these locations is estimated to be in the hundreds of thousands per year with people traveling predominantly from southern and central valley regions of California. Visitors to these areas partake in such recreational activities as camping, motorcycle touring, ATV riding, and four-wheel driving.

Within the borders of these allotments annually Special Recreation Permits are issued to guides and promoters of such events as dual sport motorcycle tours, endurance equestrian rides, and ultra marathon running events. The 65,000 acres of the Spangler Hills Open Area is annually used by about ten clubs of the American Motorcycle Association to conduct motorcycle races during the fall, winter, and spring seasons.

2. Environmental Consequences

a. Impacts of Proposed Action

Direct and Indirect Impacts:

Event participants may encounter livestock while participating in the many various permitted events that occur within grazing allotments. These encounters could lead to collision between OHVs and livestock. Around range improvement structures where cattle frequent and congregate, is many times an undesirable location for family recreation because of the flies and manure left behind. Sometimes when recreationists are passing through, they'll stop by water developments temporarily preventing livestock from watering. These encounters are infrequent but do occur.

Proposed Mitigation:

To avoid unanticipated encounters between man and livestock and to reduce safety hazards, BLM will notify both Special Recreation and grazing permittees of the others presence in the areas being used and provide with appropriate maps.

While participating in casual and permitted recreational pursuits participants may encounter such range improvements as fence lines, closed gates, cattleguards, corrals and water developments as well as encountering livestock on the public lands. While range improvements such as closed gates and cattleguards may delay ones recreational pursuits these impediments do not create a significant impact on recreational opportunities. Conversely the sighting of livestock grazing on the open range is often very intriguing and of interest to visitors and enhances one's recreational experience.

b. Impacts of No Action Alternative

Same as for Proposed Action

c. Impacts of No Grazing Alternative

The elimination of grazing would have little effect on recreational opportunities in the region except for eliminating the experience of seeing livestock on the open range of the "Wild West.". Until all range improvements were removed recreational participants may still encounter the remnants of these developments which may delay but not prohibit pursuing one's recreational interest.

3. Consultation

None

K. SOCIAL AND ECONOMIC VALUES

1. Affected Environment

The West Mojave Plan (WEMO) Final EIS (January 2005) states that agricultural sector of the economy in the area covered by WEMO accounts for 0.9 percent of the employment or about 2000 jobs. Most of the employment is in agricultural service jobs that are related to crop production. This segment of the agricultural sector employs approximately 1400 people. Stock production employs roughly 250 people and sheep production would represent a smaller portion of those 250 people when compared to cattle production. The conclusion is that agricultural pursuits represent a declining component of economic activity within the WEMO area. Sheep production, therefore, represents a small portion within that declining component.

Kern County serves as an example of the decline within the sheep industry. The number of farms in Kern County that listed sheep amongst their livestock declined by 18.4% between 1997 and 2002 (Table 16, *2002 Census of Agriculture*, USDA, National Agricultural Statistics Service, Volume 1). The number of sheep and lambs inventoried was 18.5% lower in 2002 than in 1997 and sales of sheep and lambs were off by 16.6%. Ninety-nine percent of the sheep in Kern County were on the 15 largest farms in 2002. There were 121,593 sheep and lambs inventoried in 2002. The sheep operators in the Ridgecrest Field Office Area graze an average of about 61,000 sheep and lambs per year (from Livestock Grazing critical element, Affected Environment, page 19). Therefore, the area around Ridgecrest supports about 46% of the county's sheep population for 60 days during the spring in years when conditions are favorable for grazing.

The herding of sheep in rural Kern and Inyo counties during the ephemeral growing season is a practice that is over 100 years old. Sheep grazing has been an integral part of the agricultural community in these counties. In decades past, far more sheep were grazed than are currently. In average year approximately 28,000 ewe-lamb pairs are grazed on public land in the Ridgecrest Field Office area which is fraction of what has been traditionally grazed. In the past few decades sheep operations have been competing with the growth of populations in the desert and a change in values that reflects a change in recreational pursuits and attitudes.

Sheep ranching is a labor intensive industry, not because it requires great numbers of people to accomplish it, but because it requires a great deal of "sweat equity" by a few people. The investment in machinery is low compared to other forms of agriculture, but the margin of profit is narrow in today's internationalized market. As a result, small changes in the parameters of the sheep operator's world can have a profound affect on whether or not sheep ranching is a viable enterprise.

2. Environmental Consequences

a. Impacts of Proposed Action

The proposed action follows the prescriptions of WEMO. There are two prescriptions that have the potential for impacting sheep operators. The prescription states that sheep will be pulled off the range when their diet shifts from ephemeral forage to mainly perennial forage. The second prescription states that sheep will be taken off the range when key forage species reach a utilization threshold of 25-30%. These prescriptions could potentially force sheep operators to pull off of the range well in advance of having their summer leases open for grazing further to the north. This situation could make it economically unfeasible to graze the desert because of the costs involved in finding alternative forage and the cost of transporting the sheep. These stipulations increase the uncertainty of how long a sheep operator may stay on the desert during the spring season.

The proposed action alternative would have no further economic impacts on sheep ranchers if the sheep grazing management facilities (such as bedding and watering sites, loading sites, herder camps and corrals) do not occur in such locations as to impact cultural values within the Last Chance Canyon National Register District (LCCNRD). If grazing management activities cannot be located in areas compatible with the cultural resources within the LCCNRD sheep grazing would not be authorized. If sheep grazing is not authorized within the LCCNRD, the economic impact would be significant to the permittees because approximately 50% of the grazing in Cantil Common would be affected. Since the 16 grazing permits/leases are based on each permittee's suspended preference in their undivided interest in the Cantil Common allotment, the grazing privileges would have to be redistributed. In short, the grazing "pie" would be cut in half but still have to feed the same number of operators. This could conceivably cause serious affects on the viability of some ranchers operations even though they do not graze the desert every year and the time they do graze constitutes only one-sixth of their grazing year.

Over the last 13 years (1991-2003) there have been 26,886 AUMs grazed in Cantil Common Allotment. Of these AUMs in Cantil Common Allotment, 12,790 (48%) were grazed in the LCCNRD. Over the same time period, there have been a total of 130 bands of sheep grazed in Cantil Common of which 62 (or 48%) have grazed in the LCCNRD (see Table A).

Table A: Total Bands & AUMs in Cantil Common, & Bands & AUMs in LCCNRD

Grazing Year	Total # Bands in Cantil Common	# Bands Grazed in LCCNRD	Total # AUMs Grazed in Cantil Common	# AUMs Grazed in LCCNRD
1991	21	8	4959	2445
1992	19	11	4018	2016
1993	23	11	4933	1855
1995	16	8	2223	1581
1998	19	8	3254	1450
2001	15	7	3364	1517
2003	17	9	4135	1926
'91-'03 Totals	130	62	26,886	12,790
	% Bands in Cantil Common Grazed in LCCNRD 48%		% AUMs in Cantil Common consumed in LCCNRD 48%	

b. Impacts of No Action Alternative

The impacts are the same as the Proposed Action alternative.

c. Impacts of no Grazing

The negative effects would be the loss of grazing fees that the sheep operators pay.

L. SOILS

1. Affected Environment

No current soil surveys exist for most of the allotment areas. One old (1976) survey exists for portions of SE Kern County which includes portions of the Antelope Valley, Warren Bissell, Boron, Hanson and Cantil allotments. The surveys did not include ecological site descriptions and emphasized crop potential and engineering characteristics. Soils in the area are poorly developed, are generally well drained and coarse textured. Some portions of the Monolith Cantil Allotment are internally drained resulting in a number of small playas with surface clays, surface physical soil crusts and increased salinity. The soil depth ranges from deeper alluvial materials to very shallow or non existent over the rocky substrate. The soils are susceptible to accelerated erosion from wind and water especially when the surface has been disturbed. Much of the soil has been subject to periodic disturbance due to sheep grazing for 140 years. Historic evidence indicates that historic use levels exceed current use by more than ten times. Additional soil disturbance is occurring as a result of other activities in the region including drainage from roads and rights-of-ways, development and intensive OHV use which occurs in the Spangler Hill, Dove Springs and Jawbone Canyon OHV Open Areas where OHV free play occurs.

2. Environmental Consequences

a. Impacts of Proposed Action

Direct impacts to soils could occur as a result of the hoof action of the sheep. Different impacts would occur to soils from different portions of the grazing operation. The coarse nature of the soils and the light weight of the sheep would both limit the impact to the surface several inches of the soil (Harris 1974 to 2006). Watering sites and management facilities both concentrate the sheep into a small area resulting in nearly continuous trampling impacts to those sites. The trampling would not cause any changes to the soils in the roads. However, adjacent to the roads the impacts could include increase compaction in the soil surface, reduction of vegetative cover, and disruption of biological soil crusts. It is estimated that these concentration area impacts could occur on an estimated 3800 acres spread over all of the allotments in sites of up to 3 acres. Sampling conducted on existing impact sites found that the size ranged from 0.24 to 2.14 acres in size with an average of 0.83 acres. The proposed action limits these types of sites to areas on and adjacent to roads and on previously impacted sites. As opposed to the intense use at watering and management facilities, the general grazing use is an extensive use with the animals and their hoof action spread over large areas. The Mojave Desert Air Quality Management District (MDAQMD 1995) used a USDA model and California Air Resources Board methodology and estimated that approximately 1% of the grazing areas were being impacted by hoof action each year that sheep grazed. This use can be best characterized as a series of small impacted spots (hoof marks) with large areas of interspace. This use would not result in the appreciable losses of vegetative cover or increased compaction or reduced infiltration rates.

Indirect impacts to soils could occur through the action of wind and water on disturbed surfaces. As noted, this could occur on approximately 1% of the area 6 years out of 10. The result could be a small increase in wind and /or water erosion potential in the spring in 6 years out of 10. A slight increase in the short distance movement of soils by water is possible but unlikely as high flow events are uncommon in the spring. This increase would likely not be measurable. Erosion rates would only slightly exceed natural rates. The impacts to soils as a result of the proposed action would not be significant because the losses would be small, the duration of the impacts would be short, in terms of hours/year, grazing is only likely 60% of the years and the movement would be over short distances.

b. Impacts of No Action Alternative

The impacts of the no action alternative would be similar to the proposed action in terms of impacts per unit area. Differences include a 36% larger area impacted and fewer restrictions which could increase soil impacts slightly.

c. Impacts of No Grazing Alternative

Elimination of grazing would eliminate any additional impacts to soils as a result of sheep grazing.

3. Consultation

None

M. SPECIAL STATUS PLANTS:

1. Affected Environment

There are 6 special status plants listed in WEMO, table 2-20 (BLM 2005a), which are known, or thought, to occur within the sheep grazing allotments. These include Alkali Mariposa lily (*Calochortus striatus*), Red Rock Tar plant (*Deinandra*(*Hemizonia*) *arida*), Red Rock Poppy (*Eschscholtzia minutiflora ssp twesselmanii*), Kelso Creek Monkey Flower (*Mimulus shevockii*), and Desert Cymopterus (*Cymopterus deserticola*). None of these species are federally or state listed.

Field inventories indicate the alkali Mariposa lily occurs around alkali seeps outside of any sheep grazing allotment. The Red Rock tarplant only occurs within the Red Rock Canyon State Park and is unavailable to sheep. The Kelso Creek monkeyflower occurs miles outside the sheep grazing area in the Rudnick Common allotment.

There are three special status plant species that are known in the sheep grazing areas. These are the Desert cymopterus (*Cymopterus deserticola*) which occurs in the Boron Sheep Allotment and the Red Rock poppy (*Eschscholtzia minutiflora ssp twesselmanii*) and Charlotte's phacelia (*Phacelia nashiana*) which occur in the Rudnick and Cantil Common Allotments. The desert cymopterus is a perennial. The other two are annuals. None of them are species that were reduced in numbers by human activity. By nature these are species that are of limited range and/or numbers that rely on limited specialized habitats that lack competition from other species. The key to maintenance of these species is to maintain the habitat they require. All of these species have coexisted with sheep grazing for over 100 years

Recent inventory work on the desert cymopterus indicated that the species is more numerous and more widespread than originally thought. Work in 2005 found the range extended to Ft Irwin in the SE and onto the Navy base NE of Cuddeback Lake in the NE to the populations on Edwards Air Force Base in the west. It is found on windblown fine sand deposited on the NE side of terminal lakes and hills in the area. The Cuddeback population covers over 5,000 acres with densities of 165 plants per acre. Currently there is one desert cymopterus site in the Boron allotment with sheep access and therefore the potential for impacts. The population at that site was discovered in 2005. A complete inventory for the site was not done and only 3 plants were located. The site is mostly on private land and it is bisected by a road on the private land. There is no data to evaluate the impact of past sheep grazing on the population.

Charlotte's phacelia occurs on steep talus slopes and disturbed sites with moving soils. It occurs in the El Paso Mountains and along the Eastern Sierras from Jawbone Canyon north to the Haiwee area. Elevations range from near 3,000 feet to over 7,000 feet elevation at the known sites. In the Cantil Common Allotment, Charlotte's phacelia occurs in low numbers east of Red Rock Canyon State Park in the El Paso Mountains. Little is known about these populations except for California Natural Diversity Database location records. In the Rudnick Common Allotment, surveys have detected Charlotte's phacelia along roads in Jawbone Canyon, on steep slopes, at the edges of OHV trails and in the alluvium at the base of Robber Roost. It consistently is located on soils that have recently moved.

The Red Rock Poppy was just recently described as a new species. It looks very similar to the commonly occurring little golden poppy (*Eschscholtzia minutiflora*) making field evaluations difficult. It is known from several sites in the El Paso Mountain portion of the Cantil Common Allotment. It has also been identified from sites in the Rudnick Common Allotment north and west of Red Rock Canyon State Park. Due to the identification problems with this species, it is likely the range of the species is larger than currently documented. The species has coexisted with the much heavier historic sheep use and monitoring has not found changes in populations due to grazing.

2. Environmental Consequences

a. Impacts of Proposed Action:

Grazing occurs in close proximity to special status plants in three allotments. In the Boron allotment, some incidental grazing may occur on one population of desert cymopterus in six out of ten years where a total of three known plants could be impacted.

The Cantil allotment contains two special status plants. These are the Red Rock poppy and Charlotte's phacelia. Both of these species have coexisted with grazing at much higher levels, and monitoring does not indicate that sheep grazing is adversely impacting the species. Some incidental grazing may impact individual plants which would not adversely impact the populations overall. There would not be any expected adverse habitat modification as a result of sheep grazing. The Rudnick Common Allotment contains the same two special status plants and the expected impacts would be the same.

b. Impacts of No Action Alternative:

The No Action Alternative would not result in any additional Special Status Species or new populations being potentially impacted even though additional areas would be grazed.

c. Impacts of No Grazing Alternative:

No special status plants will be impacted by this alternative.

3. Consultation

There are no listed species in the sheep allotments and therefore no need for consultation.

N. WASTE, HAZARDOUS OR SOLID

1. Affected Environment

There is slight potential for accidental spillage of oil fuel and other automotive fluids associated with grazing operations but these would be infrequent and dispersed within the allotments and, therefore the impacts would not be significant.

O. WATER QUALITY, SURFACE AND GROUND WATER

1. Affected Environment

Except for a few situations, all water used by the sheep is trucked to the animals from water purchased from various sources. The sheep use areas are mostly upland sites with few permanent waters or wetlands. Only the Cantil and Rudnick Common Allotments have permanent surface waters. The Cantil Common Allotment contains a few small seeps and springs in the El Paso Mountains. Most of the sites are small and do not support any wetland. There is a small riparian area at Willow Spring and a salt grass area near sheep springs. There is no evidence that sheep utilize either of these sites. Most of these springs and seeps have been developed for wildlife water. Sheep Springs was developed in the 1930s for livestock use. The site currently contains concrete sheep troughs and an old rock rubble water tank built by the Civilian Conservation Corps (CCC). The water source is buried and does not support any riparian vegetation. The Rudnick Common Allotment has a number of developed watering sites with protective fences. The running stream section of Dove Wash is fenced to exclude livestock. The open running stream section of Sage Canyon is on private land and the spring on BLM is fenced. The remaining open water is in the rough narrow section of Boulder Canyon where sheep would not go. The wetland sites have been monitored and there is no evidence that any the wetland sites have been adversely impacted by sheep grazing in recent times. There is also evidence of an old dried up spring development at Bedrock Spring at the south end of the Spangler Hills Allotment.

Although the only water source used to support sheep grazing is Sheep Spring within the Cantil Common allotment, a number of historic wells exist in the Cantil and Rudnick Common Allotments. Most of the wells were developed with windmills to support livestock grazing. High vandalism rates have made nearly all of the wells useless for livestock use. Inyo, Black Hills, Searles, Rinaldi and Last Chance wells are currently used as monitoring wells as part of ongoing ground water studies in the Indian Wells Valley. In the Rudnick Common Allotment, the Horse Canyon, Highway and Dove wells are within the sheep grazing area. All three of these had windmills and were vandalized and no longer operate. There is discussion on rebuilding Dove and Highway Wells with sub-pumps for cattle use. Freeman Well caved in and no longer exists. Studies indicate that the depth to water in the El Paso Mountains ranges from under 20 to 40 feet. The depth to water on the flats west and north of the El Paso Mountains is nearly 300 feet.

The storm water flows from the study area end up in one of several closed basins. The Final Unified Watershed Assessment (SWRCB, 1998) identified three large watershed basins in the study area. These are the Indian Wells-Searles Valley basin, the Antelope-Fremont Valley basin and the Coyote-Cuddeback Lakes basin. It classified all three of the watersheds as category I impaired low priority watersheds. This classification indicated that these watersheds are impaired but of a lower priority to receive Clean Water Action Plan grants from the federal Nonpoint Source Program. The impaired classification relates to municipal water supply issues not grazing. Wherever feasible, BMPs, including fencing, are applied to prevent adverse impacts to water quality. Also, the BLM is currently meeting with Lahontan Regional Water Board to develop a Management Agency Agreement for non-point sources on public lands to address water quality issues. Upon agreement by both agencies, relevant portions of the Management Agency Agreement would be incorporated into the grazing authorizations to address any remaining water quality issues or conflicts. A draft of this agreement is anticipated this year.

2. Environmental Consequences

a. Impacts of Proposed Action

The proposed actions do not represent point source impacts to water quality and no 401 permit is necessary. Impacts from the proposed action represent non-point-source impacts which are controlled by Best Management Practices (BMP) (SWRCB 2004 P 1-1 to 1-9 & 2-1 to 2-30 and USEPA 2004a P 3-31 to 3-36 & 4-129 to 4-156&b P 1 to 10). A number of the existing grazing stipulations and practices represent BMP under the clean water act. These practices include maintenance of cover, limiting high impacting uses to previously used sites, limits on season of use, limiting number of passes and limits on utilization. These BMPs reduce sedimentation and increase infiltration rates. Both of these are desirable and are positive steps toward solution of the impaired watershed classification for all of the watersheds represented by the proposed action (SWRCB 2004 and USEPA 2004a&b). As there is little free water in the allotment and none is impacted by sheep, there would be no expected impacts to water quality as a result of the proposed action.

2. Impacts of No Action Alternative

Same as Proposed Action

3. Impacts of No Grazing Alternative

No impacts to water resources would occur.

3. Consultation

The BLM is meeting with the water board to develop a Management Agency Agreement for non-point sources on public lands to address water quality issues.

P. WETLANDS/RIPARIAN ZONES

1. Affected Environment

The only sheep allotment that has springs or seeps is the Cantil allotment. Sheep Springs Riparian Area, also known as Mary Anne Spring, is the main riparian area. The riparian here consists of several cottonwood trees lining the edges a wash for about 100 feet. This riparian area is not used by sheep. There are a few small springs within the Cantil Common allotment, but sheep are herded to avoid these areas. Sheep are herded onto the open flats and rolling hills away from riparian areas. Small springs and seeps exist in the El Paso Mountains. These springs are listed in Table P-1. Many were evaluated and developed by the California Department of Fish and Game. Names of the springs in the Sheep Spring area are those used by the Ridgecrest Chapter of Quail Unlimited (QU) whose members have been in the area for over 50 years.

The development of Sheep Spring (labeled “Water Tank” on the Garlock USGS map) includes a large cement tank where herders water their sheep. Historically, 20,000 to 50,000 sheep and 400 head of cattle watered at this site. Now, a single band of sheep waters here. The tank is filled by a pipeline from Sheep Spring about 100 yards to the south. The diversion has been in place since the 1930s for sheep and cattle use. QU and other volunteers have maintained this water development for wildlife since the 1950s. The other spring in this general area is Louise Spring which consists of a fenced area with a mesquite tree and a constructed “drinker”. It is located a short distance south of Sheep Springs Riparian Area and is not used by sheep.

2. Environmental Consequences

a. Impacts of Proposed Action

With one exception, sheep grazing does not significantly affect any of the small springs and seeps. However, about an acre of vegetation around the Sheep Spring Tank in the El Paso Mountains is impacted. The upland vegetation around the tank is trampled. Sheep Spring, which does not have surface water most of the year, is not affected since it is about 100 yards above the Tank. The amount of water piped from Sheep Spring does not significantly alter the riparian character, which is mainly sedges and rushes. However, the vegetative composition in the area around the tank is altered. Saltbush (*Artiplex polycarpa*) and cheesebush (*Hymenoclea salsola*) have replaced other shrub species. These impacts by sheep will not be significant after the wildlife use area at Sheep Spring tank is fenced as described in the proposed action. Water is currently piped down from Sheep Spring to fill both the sheep tank and wildlife watering troughs. The troughs are close to a large, shady mesquite tree. Fencing the tree and troughs for wildlife would allow habitat to recover around the wildlife watering area. Disturbance would be confined to the area immediately around the large, cement tank where herders water their sheep. The Proposed Action includes covering the cement tank to slow evaporative losses, preventing the spring from dry up.

The following table shows springs within the allotments and the impacts by sheep.

Table P-1: Impacts on Springs in the Sheep Allotments

Allotment	Name of Spring	Riparian Vegetation Present	Spring is in "Proper Functioning Condition"	Water used by sheep	Vegetation impacted by sheep
CANTIL	Coffee Can Spring	No	Yes	No	No
	Cut Tree Spring	No	Yes	No	No
	Easter Spring	No	Yes	No	No
	Hennesy Spring Development	No	Yes	No	No
	Holland Spring	Not much	Yes	No	No
	LeMoureaux Spring Development	No	Yes	No	No
	Sheep Spring	Sedges, rushes, low shrubs	Yes	Diverted to Sheep Spring Tank	Diversion of water reduces riparian
	Sheep Spring Tank	Mesquite tree	Yes	Yes	Deterioration of upland vegetation (1 acre)
	Louise Spring	Mesquite tree	Yes	No	No (Fenced)
	Sheep Spring Riparian Area	Several Cottonwoods, 1 Tamarisk	Yes	No	No
	Mesquite Spring Development	Several mesquite trees	Yes	No	No
	Midway Spring Development	Herbaceous	Yes	No	No
	Sesmonite Spring Development	No	Yes	No	No
	Steel Box Spring	No	Yes	No	
	Willow Spring Development (Laurel Mt)	Yes-Willows	Yes	No	No (Fenced)

b. Impacts of No Action Alternative

Negative impacts will occur at Sheep Spring (Cantil Allotment) because not enough water is available for both sheep and wildlife and habitat around the tank is degraded.

c. Impacts of No Grazing Alternative

None

Q. WILD AND SCENIC RIVERS

1. Affected Environment

The proposed action and alternatives would have no affect on wild and scenic rivers because there none in the sheep allotments.

R. WILDERNESS

1. Affected Environment

Three of the eleven grazing allotments extend into wilderness. They are the Cantil Common, Lava Mountain, and Spangler Hills allotments. The Cantil Common Allotment (319,063 acres) encompasses the entire El Paso Mountain Wilderness (23,780 acres) and approximately one-third or 10,964 acres of the Golden Valley Wilderness. The Lava Mountain Allotment (20,873 acres) covers most of the rest of the Golden Valley Wilderness (20,412 acres), except for 4,373 acres in the wilderness' northeast corner which falls in the Spangler Hills Allotment (65,151 acres). About 11% of the Cantil allotment falls inside wilderness. Ninety-eight percent of the Lava Mountain Allotment is inside wilderness. And, seven percent of the Spangler Hills Allotment falls inside wilderness.

The El Paso Mountains Wilderness is located 6 miles southwest of Ridgecrest, CA. The wilderness area is frequented by visitors by an access road along the vast majority of the boundary. Sheep grazing within this wilderness area occurs without the aid of camping trailers or water trucks. All grazing is accomplished without the need to enter the wilderness with motorized or mechanized equipment.

There are no range developments being proposed within the wilderness area. Sheepherders haul water in trucks for their sheep along this existing road and other wilderness perimeter roads in the El Pasos Mountains. All sheepherder camp wagons, stock and water hauling trucks are stationed outside of wilderness. The control of sheep grazing does not require motorized access or the use of motorized or mechanized equipment, or any other actions normally prohibited under the Wilderness Act. Sheep however do forage and will bed down in wilderness.

The Golden Valley Wilderness is located south of the Spangler Hills Open Area approximately 10 miles southeast of Ridgecrest, CA. Golden Valley is noteworthy for its spectacular spring wildflower displays.

No new range developments are being proposed inside of the wilderness area. The grazing of sheep does not require motorized access or the use of motorized or mechanized equipment, or any other action normally prohibited under the Wilderness Act. Sheepherders haul water in trucks for their sheep along roads encircling the southern, western, and northern perimeters outside of the Golden Valley Wilderness. All sheepherder camp wagons, stock and water hauling trucks are stationed outside of wilderness. Sheep however do forage and will bed down in wilderness.

2. Environmental Consequences

a. Impacts of Proposed Action

Sheep grazing is an authorized use in wilderness. The level of sheep grazing is at or below the levels occurring in 1994, at the time of designation with the passage of the Desert Protection Act. Under this alternative, adverse impacts to wilderness are not expected to occur.

Sheep will be allowed to forage and bed down within wilderness. Sheep herder camps, watering trough sites, corrals, unloading and loading sites or any other action involving the use of motor vehicles or motorized/mechanized equipment, and/or temporary or permanent placement or construction of new range developments will not occur inside of any wilderness area. Therefore the expected impacts are determined to be less than before the area was designated as wilderness.

b. Impacts of No Action Alternative

Impacts will be the same as under Proposed Action

c. Impacts of No Grazing Alternative

The impacts of no grazing on wilderness would be to maintain naturalness, untrammeledness, aesthetic and scenic qualities in the affected wilderness areas. No grazing would eliminate the chance encounter a visitor coming across a band of grazing sheep. This is a historic use of the area and would not be available to witness under this alternative. However, the impacts would not be significant. There would be no irreversible or irretrievable commitments of resources, nor any cumulative impacts associated with this alternative.

3. Maps

Maps of wilderness within sheep allotments see allotment maps Appendix 1.

4. Consultation

None

S. WILD HORSES AND BURROS

1. Affected Environment

The proposed action and alternatives would have no effect on wild horses and burros because there are no herd management areas within the allotments.

T. WILDLIFE (T&E)

1. Affected Environment

The species found within the sheep- grazing allotments includes threatened species, special status species, and some very common ones. Table 1W, in Appendix 6 has information on species with special legal status that potentially occur in the sheep allotments. The Desert Tortoise, a federally and State threatened species, and the Mohave Ground Squirrel, a State threatened species, both occur in the allotments. Table T-1, below, indicates which species occur in the allotments under the proposed

alternative. The Walker Pass allotment will not be open to sheep grazing under the proposed action alternative.

Table 1		Allotment Name (NOTE: Walker Pass Allotment is no longer open to sheep grazing)									
Animal of Concern	Legal Status	Antelope Valley	Bissell	Boron	Cantil Common	Hanson Common	Lava Mtn	Monolith-Cantil	Rudnick Common	Spangler Hills	Warren
desert tortoise (<i>Gopherus agassii</i>)	Federal and CA State Threatened	O	X	X	X	X	X	X	X	X	O
California legless lizard (<i>Anniella pulchra</i>)	CA spp of special concern	O	O	O	O	O	O	O	O	O	O
northern harrier (<i>Circus cyaneus</i>)	CA spp of special concern	X	X	X	X	X	X	X	X	X	X
golden eagle (<i>Aquila chrysaetos</i>)	BLM sensitive , CA spp of special concern	X	X	X	X	X	X	X	X	X	X
prairie falcon (<i>Falco mexicanus</i>)	BLM sensitive, CA spp of special concern	X	X	X	X	X	X	X	X	X	X
burrowing owl (<i>Athene cunicularia</i>)	BLM sensitive , CA spp of special concern	X	X	X	X	X	X	X	X	X	X
logger-head shrike (<i>Lanius ludovicianus</i>)	USFWS Species of concern, CA spp of special concern	X	X	X	X	X	X	X	X	X	X
LeConte's thrasher (<i>Toxostoma lecontei</i>)	BLM sensitive, CA spp of special concern	X	X	X	X	X	X	X	X	X	X
Mohave ground squirrel (<i>Spermophilus mohavensis</i>)	CA State Threatened	O	O	O	X	O	X	X	X	X	O
Yellow-eared pocket mouse (<i>Perognathus xanthonotus</i>)	BLM sensitive species	O	O	O	O	O	O	O	O	O	O
spotted bat (<i>Euderma maculatum</i>)	BLM sensitive, CA species of special concern	X	X	X	X	X	X	X	X	X	X
pallid bat (<i>Antrozous pallidus</i>)	BLM sensitive, CA species of special concern	X	X	X	X	X	X	X	X	X	X

Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	BLM sensitive, CA species of special concern	X	X	X	X	X	X	X	X	X	X
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1. *Small mammals*- The yellow-eared pocket mouse, a BLM sensitive species, has been recorded (Laabs et al, 1990) on the Rudnick allotment, but not in within potential sheep-grazing areas.

The rodent and rabbit populations fluctuate greatly depending on climate but can be affected by overgrazing. Densities of certain small mammal species (Merriam's kangaroo rats, southern grasshopper mice, and long-tailed pocket mice) were higher in ungrazed areas than in grazed (Brooks, 1992). A number of species, though, were similar in densities, and jackrabbits actually were more abundant in grazed areas.

A variety of bats occur on the allotments, where they forage over large areas. Sufficient vegetation must be present to provide the range of insects, spiders, and other invertebrates required by bats. Moths are a favorite food item of the Townsend's big-eared bat which could be proposed for listing in the near future.

2. *Upland bird species*- All the native bird species on the allotment are protected under the Migratory Bird Treaty Act, but some have additional status. Burrowing owls (BLM Sensitive) require a productive vegetative community in the vicinity of their nests (burrows) because they do not forage great distances as other raptors do. They do, however, prefer shorter vegetation adjacent (5- 10 inches) to their burrows. The LeConte's thrasher is widespread over the allotment and is listed as a BLM Sensitive species. This species needs large shrubs, cacti, or Joshua trees for nesting and a productive vegetative community for foraging. Raptors, as a group, use this upland primarily for hunting. They depend on a vegetative community that produces abundant rodents, rabbits, and other prey. The prairie falcon, a BLM sensitive species, nests at Robbers Roost in the Rudnick Common allotment and at other sites with steep cliff faces. Golden Eagles also nest in the Rudnick allotment. Both Prairie falcons and Golden Eagles nest in the El Pasos (Cantil allotment) and in the Hanson allotment, as well. They forage over a wide area, including the adjacent valleys of the allotments.

3. *Reptiles and amphibians*- The legless lizard is a California species of Special Concern. It has been found in one location in Jawbone Butterbrecht ACEC (Rudnick Common allotment) outside of the areas potentially grazed by sheep.

4. *Large mammals and game birds*- Mountain lions, bobcats, and coyotes are scattered sparsely over the sheep allotments and feed mostly on rabbits and rodents. Big and small game animals are hunted under CDFG regulations. The main species of upland game birds are California quail, mountain quail, chukar, and mourning dove. These are ground- nesting birds, so the potential exists for sheep to crush their nests. However, usually nests are hidden from predators, allowing some protection. These populations do, however, fluctuate with the weather, mainly precipitation, which affects vegetation (food and cover). The group is also affected by factors that reduce their prey, such as heavy grazing on annuals.

Riparian associated species – Cantil Allotment

The sheep allotments have few riparian areas, and these springs are small and isolated. There are several springs in the El Paso Mountains (Cantil allotment). Springs are extremely important to both migrating and resident bird species. Amphibians such as red-spotted toads are associated with the small riparian areas. Sheep are herded onto the flat or rolling open rangelands and are watered away from spring sites. Sheep Spring Tank is heavily used by sheep, but it is about 100 meters away from the natural spring. See Wetland/Riparian section on the affect of sheep grazing on this resource.

Threatened or Endangered Species:

1. Desert tortoise- The desert tortoise is a State and Federal Threatened species. Sheep graze primarily in Non-Critical Habitat, the lowest quality habitat. About 6,200 acres of Critical Habitat inside the DWMA are open to sheep grazing in the Cantil Common Allotment. In the Lava Mountain allotment, 2,165 acres of Critical Habitat that are outside of the DWMA are open to grazing. The remainder of sheep grazing occurs in outside Critical Habitat. As shown in Table T-2, the desert tortoise occurs in all the allotments.

The analysis will focus on habitat rather than on the tortoise population. This is because of the difficulty in coming up with an estimate. Keith et al (2005) conducted a 3 three study on the Rudnick allotment sampling a 188 km² and coming up with an estimate of about 170 tortoises. This would work out to about 2-3 tortoises per square mile except that the researchers felt that with so few tortoises actually observed, the actual number could vary from this estimate by a large margin.

Allotment Name	Total BLM land Open to Grazing under proposed action	NON-CRITICAL Habitat open to grazing in Proposed Action	CRITICAL Habitat open to grazing in Proposed Action	CRITICAL Habitat removed from grazing in Proposed Action
Antelope Valley	7,158	0	0	0
Bissell	5,596	2,360	0	0
Boron	10,868	10,868	0	0
Cantil Common	203,567	197,371	6,196	115,496
Hanson Common	16,840	2,747	0	0
Lava Mountain	20,902	18,737	2,165	0
Monolith-Cantil	10,825	10,825	0	12,218
Rudnick Common	102,000	60,040	0	0
Spangler Hills	68,183	68,183	0	0

Walker Pass Common	0	0	0	<u>Non</u> Critical Habitat removed: 32,058
Warren	556	0	0	0
Total	446,495	371,131	8,361	Non-Critical = 32,058; Critical = 127,714

Critical Habitat- Critical habitat is within 2 allotments: the Cantil and Lava Mountain. The 2,165 acres in the Lava Mountain allotment is mostly in Wilderness, and the 6,196 acres in the Cantil Common lie in a triangle formed from Highway 395 and the Randsburg Mojave Road. This area has extensive mining activity, as well as sheep grazing. (See Maps, Appendix 1, showing Desert Tortoise Habitat, and Land Removed from Sheep Grazing)

The Desert Tortoise Recovery Plan attributed population declines to cumulative impacts of human intervention, predation, habitat loss and degradation, and disease (USFWS, 1994). Tracy, et al (2004) cited excessive route proliferation as the key reason for failure of tortoises to rebound elsewhere. Losses due to Upper Respiratory Tract Disease (URTD) were most likely exacerbated by extreme periods of drought over this same time period. Brown, et al (1999) suggests that the clinical expression of this disease may be cyclical, again perhaps related to weather patterns.

2. *Mohave ground squirrel (MGS)* - This species is a California State Listed Species protected under the California Endangered Species Act. MGS occur in the same vegetation communities used by domestic sheep. Table T-4 shows where sheep grazing would occur within the Mohave Ground Squirrel Conservation Area under the Proposed Action (Also see map of MGS Habitat in Appendix 1).

Table T-4: Mohave Ground Squirrel Habitat within Sheep Allotments on BLM Land under proposed action

ALLOTMENT NAME	TOTAL BLM ACRES AVAILABLE TO SHEEP	BLM ACRES IN MOHAVE GROUND SQUIRREL CONSERVATION AREA AVAILABLE TO SHEEP
Antelope Valley	7,158	0
Bissell	5,596	0
Boron	10,868	0
Cantil Common	203,567 (319,063 under current management)	156,314
Hanson Common	16,840	0
Lava Mountain	20,902	20,902
Monolith-Cantil	10,825	10,825
Rudnick Common	102,000	102,000
Spangler Hills	68,183	35,173

Walker Pass Common	0 (32,058 under current management)	0 (32,058 under current management)
Warren	556	0
Total	446,495	325,214

The MGS “is a generalist in terms of plant community preference; it is neither restricted to nor concentrated within any of the 16 plant communities where it has been reported. (U. S. BLM, 2003).”

Table T-5

Plant Community	Percent Occurrence of MGS population across its range	% Occurrence of Community within MGS Range
Mojave creosote bush scrub	53.96 %	53.97
Desert saltbush scrub	19.84 %	19.84
Mojave mixed woody scrub	8.73 %	8.79
Urban	5.95 %	5.95
Agriculture	3.57 %	3.57
Other types	7.87 %	7.96
Totals	100.00 %	100.00

MGS populations follow a “boom and bust” cycle; they expand into habitats when conditions are favorable and shrink back into core areas when conditions are less favorable, particularly when drought occurs over several years (U.S. BLM, 2003). Leitner (1998) found that the population fluctuates drastically with rainfall, reflecting reproductive success. In years with low winter rainfall, no reproduction occurred. It is important that the vegetation communities forming the “core” remain in excellent condition. Also, those areas that the squirrel would expand back into must be maintained in good health. Leitner and Leitner (1996) demonstrated an overlap in the diet of domestic sheep and MGS. Any grazing system must allow sufficient forage for the squirrels, both shrub species and annual plants. Shrubs are also important for cover. Utilization of shrubs by livestock should be low enough to maintain or increase the total vegetative cover.

The analysis will focus on habitat rather than on the population of MGS.

2. Environmental Consequences

a. Impacts of the Proposed Action

Impacts of the Proposed Action on Wildlife Habitat - All Allotments

Sheep grazing management is identical on each of the 11 allotments and follows the stipulations in the USFWS Biological Opinion “Terms and Conditions” (Appendix 6).

Grazing affects wildlife through impacts to both soil and vegetation, which provide habitat to many species. Soil provides substrate for animal burrows and for plant growth. Vegetation is the base of the food web and provides protective cover. The impacts to soil and vegetation are greatest at sites where the sheep are concentrated for longer periods of time, such as bedding sites and watering sites. The band is concentrated twice a day, during their afternoon nap and when they bed down at night. At such

locations, sheep trample and damage vegetation. The area of bedding is generally 1/3 to 1/2 of an acre in size. These areas can take many years to recover, but their small size prevents significant impacts to any wildlife species. Sufficient food and cover is still available in habitats adjacent to these highly disturbed areas. Sheep have been grazing in these allotments since the mid-1860's.

Forage production determines the number of sheep permitted to graze and the date they are turned out are. If forage production exceeds 230 lb/acre (350 lb/acre in a DWMA), BLM authorizes sheep grazing. This measure assures that enough forage will be available for both sheep and wildlife. Authorized areas of use are specific for each band, ensuring that sheep grazing does not overlap. Double pass grazing is inconsistent with the Terms and Conditions of the Biological Opinion. Avoidance of double pass grazing prevents severe impacts to wildlife habitats. Since sheep pass through an acre once, habitat in any one area is exposed to impacts for a few hours during in a season. The impacts do not occur every year since grazing has been authorized in 11 out of the past 16 years (See Table 2A). The Rudnick allotment was grazed by one band once in the past 16 years. The Cantil Common allotment was grazed 10 out of the past 16 years by an average of 18 bands per year. The fact that a herder controls the band of sheep ensures that the flock continues to move through the permitted area, preventing adverse impacts to unauthorized areas.

Table T-6 presents impacts that would occur when the Proposed Action is implemented. The changes set forth in the Proposed Action will benefit wildlife.

Table T-6. Impacts of Proposed Action Relative to No Action

Proposed Action	Allotments Affected	No Action	Proposed Action	Affect on Wildlife Habitat
Require More Production of annual plants before permitting grazing	All	200 lb/acre	230 lb/acre (350 in a DWMA)	More forage
Reduce number of sheep allowed in combined band	All	2,000 adults	1,600 adults	Less trampling of habitat
Reduce grazing in Non-Critical Tortoise Habitat	Walker Pass	32,058 acres grazed	0 acres grazed	More food and cover
Reduce grazing in Critical Tortoise Habitat	Cantil Common	121,692 ac grazed	6,196 ac grazed	More food and cover
	Monolith-Cantil	12,218 ac grazed	0 ac grazed	
Modifications at Sheep Spring	Cantil Common	Wildlife drinkers not fenced	Wildlife drinkers fenced	Dependable water for wildlife
Remove sheep from MGS Conservation Area when annual forage is depleted	1) Cantil Common 2) Lava Mt 3) Mono-lith-Cantil 4) Rudnick Common	Sheep stay all season	Sheep are removed when ephemeral forage is gone	More forage for MGS and other species. Prevents overgrazing on key shrub species.

	5)Spangler			
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Impacts of the Proposed Action on 5 allotments in Desert Tortoise Habitat and Mojave Ground Squirrel Conservation Area: Cantil Common, Lava Mountain, Monolith-Cantil, Rudnick Common, Spangler.

Impacts to wildlife species would occur on about 446,500 acres of desert wildlife habitat in these 5 allotments (see Table T-4: Total BLM Acres Available to Sheep). Table T-1 identifies sensitive species that are potentially affected in each allotment. Direct impacts include trampling of young animals or crushing young in their burrows or nests. These impacts apply to various species of lizards, birds, rodents, as well as the desert tortoise. "Cattle and sheep grazing may pose a potential threat due to the effects on plant assemblages or erosion of soils" (David Laabs, Biosearch Wildlife Surveys; www.blm.gov/ca/pdfs/cdd_pdfs/yellowpkm1.PDF). The main indirect impact is the grazing of annual plant species, many of which are used by wildlife for food and cover. Some of these wildlife species are, in turn, eaten by predators. Impacts occur from browsing on shrubs at bedding sites and elsewhere when annuals have dried up or have been depleted by grazing. Within these 5 allotments, species diversity would be somewhat less in the grazed areas, and total biomass would also be slightly less. The number of species should remain similar between grazed and un-grazed areas except that those species that are more susceptible to grazing impacts decrease.

Table T-7 presents potential impacts on wildlife species of concern and whether they are significant to the species.

Table T-7: Potential Impacts of Sheep Grazing on Wildlife Species with Legal Status (see table T-1)

Species of Concern	Decrease in Food Supply	Reduced Cover	Damage to nest or home	Direct Mortality	Significant Impact to Species?
Desert Tortoise	Annual plants	damage to shrubs	Nest/Cover-Burrows crushed	small tortoises crushed	No
<u>Raptors:</u> Northern Harrier, Golden Eagle, Prairie Falcon	rodents, rabbits, birds, invertebrates	No	No	No	No
Burrowing Owl	Rodents, invertebrates	No	Nest/Cover-Burrows crushed	Eggs or young crushed in burrows	No
Loggerhead shrike	Birds, rodents	damage to shrubs			No
LeConte's Thrasher	Food-invertebrates	damage to shrubs	Nests damaged	Eggs or young in nests	No
Mohave Ground Squirrel	Food- annuals and shrubs	damage to shrubs	Nest/Cover-Burrows crushed	Young squirrels crushed in burrow	No
<u>Bats:</u> Spotted Bat, Pallid Bat, Townsend's Big-eared Bat	Invertebrates	No	No	No	No

Riparian Habitat

The proposed action will benefit wildlife that use Sheep Spring since the spring will be modified to provide dependable water (See Wetland/Riparian section of EA).

Desert Tortoise

A total of 127,714 acres of Critical Habitat will be removed from sheep grazing under the Proposed Action (See Tables T-2 and T-6). In addition, sheep grazing will be eliminated from 32,058 acres of Non-Critical Habitat. Sheep are grazed according to the Terms and Conditions of the Biological Opinion.

Most scientists recognize that historical overgrazing has caused a deterioration of desert tortoise habitat. The US Fish and Wildlife Service's (FWS) critical habitat rule emphasized the detrimental effects of roads, ORV use, and grazing on desert tortoises and their habitat. In addition to the direct effects, FWS identified numerous indirect grazing impacts including loss of plant cover, reduction in number of suitable shelter sites, change in vegetation, compaction of soils, reduced water infiltration, erosion, inhibition of nitrogen fixation in desert plants and promotion of harmful exotic plants. The current management of sheep grazing has not been evaluated over the long term regarding impacts to desert tortoises. Short term studies and observations have identified potential conflicts, and in many cases, the management of sheep grazing has been modified to reduce these impacts. Many of these modifications to the way sheep are grazed are in the USFWS Biological Opinion "Terms and Conditions" (see Appendix A). Impacts are mainly to the soil (increased compaction and disturbance of biological crusts), to the vegetation (removal of biomass), and, to a much lesser extent, to small tortoises and burrows (Lovich, et al., 1999).

Impacts to tortoises would occur on 8,361 acres of Critical Habitat in the Cantil and Lava Mountain allotments. Slightly over 371,000 acres of Non-Critical Habitat would also be affected. The impacts occur as sheep are herded through the permitted area of use, trampling the ground and removing annual forage. Since tortoises tend to construct their burrows at the base of large shrubs, particularly creosote bushes, trampling of burrows is not likely. Sheep consume forage that is also needed by tortoises, but the sheep are usually turned out after tortoises (especially young) have emerged and have started eating. Since grazing is not authorized unless annual production is 230 lb/acre (350 lb/acre in DWMA's), enough forage is available for both sheep and the desert tortoise. Predators that are a threat to young tortoises may be attracted to sheep camps because of food and water. However, this threat is not considered significant to the population since the sheep camps are very temporary.

The sheep grazing season falls between mid-March and May 31. In desert tortoise Critical Habitat sheep are not allowed to graze before March 20th. The potential for trampling small tortoises exists since the young leave their burrows when weather is not too hot and forage is present. However, as the season progresses, the young are likely to remain in their burrows longer to avoid the heat. For most of the grazing season, they would not be vulnerable to being crushed (if the burrow is situated under a shrub). The USFWS has determined that eight (8) tortoises may be killed or injured as a result of sheep grazing, with the young tortoises the most likely victims.

Under the Terms and Conditions, the sheep will make a single pass through an area, in a loosely aggregated flock. This means that a tortoise could be disturbed once during the spring for a few hours on one day. This disturbance is not likely to impact a tortoise's ability to obtain enough food to survive. There appears to be no impact on breeding behavior. Recent studies have found that the testosterone level in male tortoises is highest in the fall (U. S. Bureau of Land Management, 2004), and

tortoises generally mate at this time. Therefore, sheep do not directly interfere with courtship and mating of desert tortoises.

Impacts to the overall population are minimal since mainly young, small animals are impacted. Reproductive adults are the key to maintaining a stable population. Enforcing compliance of prescriptions such as grazing sheep in a loose, open, manner will improve the chances that more small tortoises will enter into the adult cohort. This will be important in maintaining genetic diversity.

The following list assesses impacts on the constituent elements of Critical Habitat:

Critical Habitat – Constituent Elements – Cantil and Lava Mountain Allotments

1) Sufficient space to support viable populations within each of the six recovery units and to provide for movement, dispersal, and gene flow.

This element is not applicable to the scale of an individual allotment. The size of the critical habitat was designed to allow sufficient space within a recovery unit. Grazing does not impede movement, dispersal, or gene flow. The WEMO plan amendment eliminated grazing in large areas of the West Mojave Recovery Unit, including portions of the Cantil Common and Monolith-Cantil allotments in critical habitat, contributing to the maintenance of this primary constituent element.

According to the biological opinion: “Because of the nature of grazing within allotments designated in the California Desert Conservation Area, we do not anticipate that implementation of the Bureau’s program guidance for livestock grazing would remove sufficient habitat or fragment the landscape to the degree that the function of this primary constituent element is likely to be compromised.”

2) Sufficient quality and quantity of forage species and the proper substrate conditions to provide for the growth of these species.

Grazing stipulations in the WEMO plan amendment were developed to assure sufficient quality and quantity of forage species for desert tortoises. These stipulations are 1) utilization of perennial plants may not exceed 40 percent in any key area; 2) sheep will be not be permitted in Desert Wildlife Management Areas when ephemeral forage production is less than 230 pounds per acre (air dry weight); and 3) the termination of ephemeral authorizations when ephemeral forage is depleted and shrub utilization reaches a specified level.

As stated in the biological opinion: “If all critical habitat were grazed within every allotment at the highest level of use authorized by the California Desert Conservation Area Plan, the quality and quantity of forage species could be altered. However, grazing does not normally occur throughout entire allotments.”

Additionally, given grazing stipulations in the WEMO plan amendment (i.e. utilization of perennial plants may not exceed 25- 30 percent in any key area; sheep will be substantially removed from desert wildlife management areas when ephemeral forage production is less than 230 (350 in DWMA’s) pounds per acre (air dry weight) from March 15 through June 15 (March 15 through June 1 in DWMA’s); and the termination of ephemeral authorizations) sufficient quality and quantity of forage species should be available for desert tortoise.

3) Suitable substrates for burrowing, nesting, and over wintering.

According to the biological opinion: “Although livestock may occasionally trample a burrow, they generally do not alter the substrates throughout allotments to the degree that burrowing is no longer possible. Livestock tend to congregate near salt licks and tanks and are occasionally restrained in corrals; the substrates in these areas are highly unlikely to be able to support burrowing and nesting by desert tortoises. Because these areas are relatively small in size compared to the area of critical habitat occupied by desert tortoises in the California Desert Conservation Area, we do not anticipate that implementation of the Bureau’s program guidance for livestock grazing would affect suitable substrates for burrowing, nesting, and over wintering to the degree that the function of this primary constituent element would likely be compromised.” In the case of sheep grazing, the salt licks, tanks, and corrals would correspond to bedding areas, watering areas, and loading and unloading sites.

4) Burrows, caliche caves, and other shelter sites.

The level of grazing permitted in these allotments is not likely to cause a substantial alteration in the number of shelter sites. Few caliche caves are present where critical habitat occurs in the Cantil and Lava Mountain allotments. Sheep are not generally herded along washes where caliche caves tend to occur in our area.

As stated in the biological opinion: “If critical habitat of the desert tortoise was grazed in every location where it coincided with an allotment in a manner where these effects were causing a substantial alteration in the quantity of shelter sites, the function of this primary constituent element could be impaired as a result of the Bureau’s guidance for its livestock program.” However, grazing does not normally occur throughout entire allotments.

The level of grazing permitted in this allotment is not likely to cause a substantial alteration in the number of shelter sites. Few, if any caliche caves are present within the critical habitat portion of the sheep allotments.

5) Sufficient vegetation for shelter from temperature extremes and predators.

The 230 lbs/acre forage threshold for sheep turnout (350 lbs/acre in DWMAs) and the utilization standards for key plant communities should allow for sufficient vegetation for shelter. Maintenance of rangeland health standards prevents overgrazing to the point where desert tortoise shelter sites would be negatively impacted.

According to the biological opinion: “If all critical habitat were grazed within every allotment at the highest level of use authorized by the California Desert Conservation Area Plan, the quality and quantity of shelter sites provided by perennial plants could be altered. However, grazing does not normally occur throughout entire allotments. Furthermore, the amount of grazing that actually occurs within critical habitat is substantially less than the amount previously described in this section of the biological opinion.”

The 230 lbs/acre forage threshold for sheep turnout (350 lbs/acre in DWMAs) should allow for sufficient vegetation for shelter.

The WEMO Prescriptions for Cattle Grazing Activities in Desert Tortoise Habitat ensure that that grazing will not appreciably diminish the value of critical habitat. Sheep will be removed when ephemeral forage is depleted and utilization of perennial forage species reaches a specified limit. Conditions in this EA limit utilization of perennial forage species to 25% and 30% for key shrub species.

6) Habitat protected from disturbance and human-caused mortality.

The biological opinion states: "...implementation of the Bureau's guidance for livestock grazing likely results in few desert tortoises being directly killed or injured. Except for times when cattle are being actively driven, activity levels associated with cattle grazing seems to be relatively minor. ... For these reasons, the level of disturbance associated with livestock is sufficiently low that it is unlikely to compromise the function of this primary constituent element." In this case sheep are herded by dogs, in a loose group, with many smaller hooves instead of larger hooves. Only hatchlings are susceptible to this type of impact since the larger tortoises have hard shells and can right themselves when turned over by hoof action.

Furthermore, human-caused mortality due to grazing activities must be reported to the Bureau. Should these mortalities exceed the number allowed in the incidental take statement, then the Bureau would need to re-evaluate these allotment's terms and conditions and the impact on desert tortoise and its habitat due to grazing.

The WEMO Prescriptions for Cattle Grazing Activities in desert tortoise habitat assist in the protection of this primary constituent element.

A variety of human uses impact the desert tortoise within the sheep allotments. Casual use recreation, primarily OHV activity, takes place within the allotments. Additional activities are discussed elsewhere.

Mohave Ground Squirrel

The 5 allotments listed above are within the MGS Conservation Area, affecting about 325,214 acres of Mohave ground squirrel habitat. Impacts to the Mohave ground squirrel would not be significant under the Proposed Action with the Terms and Conditions in place. These impacts would be indirect, in the form of grazing annual plants and shrubs that are important to MGS. The highest MGS populations have actually been found at higher elevations, outside of the sheep- grazing areas. Under proper grazing practices impacts on shrubs would occur primarily at bedding areas, and would generally not occur on Public land because sheep would be removed before annuals (their preferred food) disappeared. In the MGS Conservation Area, once ephemeral forage is no longer available, grazing will be terminated for the season. Under the proposed action, utilization levels are set at 30% for winterfat and 25% for spiny hopsage to ensure that 70% and 75%, respectively, of new growth will be available for the squirrels. These shrub species are important forage plants for the Mohave ground squirrel. Before this level of utilization is reached, sheep will be removed from allotments in the MGS Conservation Area (see Table T-4 for 5 allotments applicable to this restriction).

Eliminating sheep grazing from 127,714 acres of Critical Habitat in the Cantil and Monolith-Cantil allotments contributes to recovering Desert Tortoise Critical Habitat range wide. The WEMO Plan states that with regard to listed species, including the tortoise, the cumulative impacts will not be

significant or adverse. The increased protection within DWMAs, along with more route designation outside of these areas will offset impacts of increased OHV activity, mining, and land development.

The 127,714 acres of Critical Habitat discussed above is also within the MGS Conservation Area. Therefore, the Mohave Ground Squirrel will also benefit from the reduction in grazing. MGS populations are expected to increase, depending on winter precipitation.

Sheep have been grazing in these allotments for over a hundred years, but only in the last 25 years has this activity been managed under the CDCA Plan. It has been demonstrated at the DTNA and elsewhere that the desert-scrub community can redevelop a healthy native annual plant component if rested from grazing.

Impacts of the Proposed Action on the following 4 allotments: Bissel, Boron, Hanson Common, Walker Pass

Walker Pass will not be grazed (by sheep). In this allotment, 32,058 acres of Non-Critical desert tortoise habitat will be removed from grazing under the Proposed Action. This action will benefit wildlife.

No riparian areas or springs exist in these allotments

These allotments are not within the MGS Conservation Area. Impacts to this species would be insignificant.

Impacts to the desert tortoise will be the same to those described above. However, there is no Critical Habitat in these 4 allotments.

Impacts to other wildlife will be the same as discussed above. (See Table T-7)

Impacts of the Proposed Action on the following 2 allotments: Antelope Valley and Warren

Since these allotments are outside of designated desert tortoise habitat and also outside of the MGS Conservation area, impacts on these species will be insignificant.

No riparian areas or springs exist in these allotments.

Impacts to other wildlife will be the same as discussed above. (See Table T-7)

b. Impacts of the No Action Alternative

Impacts of the No Action Alternative on Wildlife Habitat - All Allotments

Adverse impacts will be the slightly greater than those for the Proposed Action (See Table T-6: Impacts of Proposed Action relative to No Action). Slightly less forage would be available to wildlife under the No Action than under the Proposed Action. To permit grazing, production of annual forage species needs to be only 200 lb/acre rather than 230 lb/acre as required under the Proposed Action (requirement would remain 350 lb/acre in DWMAs). Slightly more habitat would potentially be disturbed since the number of sheep in

a combined band is allowed to be 2,000 adults under No Action as opposed to 1,600 adults under the Proposed Action.

Impacts of the No Action Alternative on 5 allotments in Desert Tortoise Habitat and Mojave Ground Squirrel Conservation Area: Cantil Common, Lava Mountain, Monolith-Cantil, Rudnick Common, Spangler.

Impacts will be the greater than those for the Proposed Action, primarily affecting the DWMAs, Critical Habitat, and the Mohave ground squirrel. Sheep would be able to consume 30 to 50 more pounds of annual plants more per acre, reducing the amount available for tortoises and MGS by up to 15 to 20%. Up to 20% more sheep per band could graze over a parcel of land, increasing the likelihood that a small tortoise could be impacted. Over 30,000 more acres of non-critical tortoise habitat could be grazed and over a hundred thousand of acres of Critical Habitat could potentially be grazed under this alternative.

Under the No Action Alternative, grazing would occur in more habitats in both Non-critical and Critical tortoise habitat in the Cantil Common and Monolith–Cantil allotments. Any grazing in additional tortoise habitat (more area than under the proposed Action) would not be beneficial to most wildlife species. Forage and cover might be more depleted under the No Action than under the Proposed Action alternative. Under the No Action Alternative, sheep would be allowed to graze even after annual forage is depleted. Under the Proposed Alternative, sheep would be removed when shrub utilization reaches a specified level. Under the No Action alternative, no modifications would be implemented at Sheep Spring (Cantil allotment), resulting in less dependable water available to wildlife. Under the Proposed Alternative modifications would provide enough water would be available for both sheep and wildlife. The impact of the No Action Alternative would have little effect on the Rudnick Common allotment since it has been grazed once in 16 years.

In the MGS conservation area of 325,000 acres, sheep may be allowed to graze longer, potentially impacting the shrub species necessary for MGS survival. Allowing sheep to graze more than 25 to 30% of new shrub growth could affect the available new growth available for the MGS. In those marginal years the impacts on the annual plants could affect the reproductive success of squirrels. In the marginal communities, the squirrels could disappear as they did in Rose Valley in the early 1990s.

Impacts of the No Action Alternative on the following 4 allotments: Bissel, Boron, Hanson Common, Walker Pass

Under the No Action Alternative, sheep grazing would continue to be permitted in Walker Pass, resulting in greater impacts to wildlife habitat than would occur under the Proposed Action. Sheep grazing in the Walker Pass allotment would affect 32,000 acres of non-critical tortoise habitat. This would affect the MGS as well. Other sensitive species listed in the table would be impacted. Nesting birds such as the LeConte's thrasher could be disturbed by a band of 2,000 sheep walking through.

Impacts of the No Action Alternative on the following 2 allotments: Antelope Valley and Warren

Impacts will be greater than those for the Proposed Action, but since these allotments of small, scattered parcels are surrounded by private land, there is a greater potential for off road vehicle trespass. These allotments are marginal habitat for the tortoise and MGS and are isolated. These

species may not be able to recolonize the parcels if they are eliminated due to habitat degradation. The diversity of wildlife is not likely to be high given these characteristics.

The No Action alternative would have little impact on the Antelope Valley allotment since it has been grazed only 3 out of the past 16 years. Since the Warren allotment has been grazed 9 out of 16 years, continuing to graze sheep under the same regulations would have slightly greater impacts on habitat than imposing new regulations of the Proposed Action that are beneficial to habitats. (See above: *Impacts of the No Action Alternative on Wildlife Habitat - All Allotments*)

c. Impacts of No Grazing Alternative

Impacts of the No Grazing Alternative on Wildlife Habitat - All Allotments

With no grazing, there may be an increase in small mammals and birds, especially with respect to: the Miriam's kangaroo rat, southern grasshopper, and long-tailed pocket mouse. This could span an area of around 400,000 acres. An indirect impact might be an increase in predators, including golden eagles. See Table T-7, Potential Impacts of Sheep Grazing on Wildlife Species with Legal Status. Under the No Grazing alternative, these potential impacts would be eliminated. However, these impacts could still occur as a result of other activities and natural factors.

The vegetative community would develop more in response to climatic factors, as well as human activities other than sheep grazing. The ecological community would trend more towards a composition of native plant and animal species. However, several non-native species are fairly well established and are likely to persist even under a non-grazing regime. Under the No Grazing Alternative, there would be some increase in the health, vigor, and abundance of certain plant species that provide cover and forage for wildlife species. Recovery of the vegetation would stimulate habitat diversity. The resultant habitat would provide an opportunity for the tortoise and Mohave ground squirrel populations to increase. Other wildlife populations would also increase because of the improved condition of their habitats. This would be particularly noticeable in bedding areas with high levels of sheep use or in areas where sheep grazing is the only human impact. Recovery in these intensely used areas could take several years, depending on precipitation.

Impacts of the No Grazing Alternative on 5 allotments in Desert Tortoise Habitat and Mojave Ground Squirrel Conservation Area: Cantil Common, Lava Mountain, Monolith-Cantil, Rudnick Common, Spangler.

There would be slightly higher numbers of desert tortoises. This would result primarily from eliminating trampling of hatchlings and impacts associated with bedding areas, as well as from increasing annual forb availability and cover. These differences may not be detectable using current methodologies. By managing other factors such as OHV activity, collection, mining impacts, and urban development, tortoise numbers could approach to pre- drought levels.

Numbers of Mohave Ground Squirrels (Rudnick allotment) could increase, depending on additional factors affecting habitat quality, such as other human activities and climatic factors.

Impacts of the No Grazing Alternative on the following 4 allotments: Bissel, Boron, Hanson Common, Walker Pass

Impacts on the desert tortoise would be similar to those mentioned above for the Cantil Common, Lava Mountain, Monolith-Cantil, Rudnick Common, Spangler.

Impacts of the No Grazing Alternative on the following 2 allotments: Antelope Valley and Warren-
See “*Impacts of the No Grazing Alternative on Wildlife Habitat - All Allotments*”

3. Consultation

Denyse Racine of CA Dept. of Fish and Game was consulted concerning species that could occur in the allotments and potential impacts.

4. References

Stebbins, R.C. 1985. A field guide to the western reptiles and amphibians. Boston: Houghton Mifflin Co. 2d ed., p. xiv +279.
Listed at the end of the document

U. VEGETATION

1. Affected Environment

General:

The project area is located at the western edge of the Desert Floristic Province as described in the *Jepson Manual, Higher Plants of California* (Hickman et al. 1993). It is adjacent to the California Floristic Province and the Great Basin Floristic Province. This has resulted in components from both these provinces occurring in the area. Sawyer and Keeler-Wolf in *A Manual of California Vegetation* (1995) describe the vegetation as Series (communities) dominated by shrubs. The vegetation in the study area is typical for the western Mojave Desert with one major exception. Prevailing westerly winds along the western edge of the Mojave Desert block most summer rainfall. This results in a cool-season vegetation complex lacking warm-season plant species that are common farther east (USBLM 2005). These sheep allotments are totally within the cool-season plant zone.

The historical vegetation for the region has changed greatly over the last 10,000 years. Ten thousand years ago, the region was coming out of the Ice Age. Conifer forests covered most of the region and large lakes existed in the Indian Wells and Searles Valleys. Since then the climate has gotten much warmer and drier and the original vegetation has retreated over 3,000 feet up the mountains. In the place of the original vegetation is a whole new set of plant communities that are adapted to the new climate have arrived. As an example, the creosote bush (*Larrea tridentata*) which is now the dominant plant species in the region, spread into the region from the southeast arriving in the Indian Wells Valley area only 7,000 years ago. As a result, the current plant communities in the sheep allotments consist primarily of species that are relatively new to the region and quite dynamic (Johnson and Mayeux 1992).

The creosote bush Series is the most prevalent vegetation Series in the area. In addition the Creosote bush Series dominated the vegetation in all of the allotments. Common perennial species found in the Creosote bush Series include Creosote bush, Burro-bush or Bursage (*Ambrosia dumosa*), Winterfat

(*Ceratoides lanata*), Spiny Hop-Sage (*Grayia spinosa*), Desert needlegrass (*Achnatherum (Stipe) speciosa*), Indian ricegrass (*Achnatherum (Oryzopsis) hymenoides*) and Varied bluegrass (*Poa secunda*).

The Joshua tree (*Yucca brevifolia*) Series is also found through the study area in all of the allotments. This Series is similar to the Creosote Series with the inclusion of emergent Joshua trees. This series typically occurs at the upper edge of the Creosote bush Series where there is more moisture.

The Mixed Saltbush Series occurs primarily in the Monolith Cantil Allotment. Mojave salt bush (*Atriplex spinifera*) is the principal specie over a large portion of the allotment where poor drainage is prevalent.

A common thread to all of the vegetation series is the occurrence of a diverse groundcover of annual plants. This ephemeral production is the principal basis for the sheep grazing in the desert. The annual (ephemeral) vegetation is extremely variable in biomass production, groundcover relative abundance and species composition year to year and site to site. Michael Bowers (1987) conducted research on this topic and concluded that: "Annual composition was not related to that of the previous year." In addition he stated: "These results suggest that compositional dynamics of annual plants in the Mojave Desert are keyed to processes that affect germination." Glenn Harris (1974-2006) has observed that in the western Mojave Desert these factors include day length, temperature (air and soil) and precipitation volume and timing. Biomass production is zero in poor years with little precipitation, but can exceed 4000 pounds per acre at the better sites in a good year with warm moist conditions in February and March. More common biomass productions will range between 500 and 1000 pounds per acre. In the past this has occurred 6 out of 10 years. Over 500 species of annual plants occur in the area. Of these, only a few dozen species are of sufficient numbers and production to be important to livestock. These include storks bill or filaree (*Erodium cicutarium*), coreopsis (*Coreopsis bigelovii*), fiddleneck (*Amsinkia spp.*), phacelia (*Phacelia fremontii* and *tanacetifolia*), yellow comet (*Mentzelia spp.*), goldfields (*Lasthenia (chrysostoma) californica*), desert dandelion (*Malacothrix californica*), bottle washer (*Camissonia spp.*), Fremont pincushion (*Chaenactis fremontii*), gillia (*Gillia spp.*), for-get-me-not (*Cryptantha spp.*), desert candle (*Caulanthus inflatus*), desert trumpet, (*Eriogonum inflatum*), mustard (*Brassica spp.*), little golden poppy (*Eschscholtzia minutiflora*), California poppy (*Eschscholtzia californica*), Arabian grass (*Schismus aribicus*), cheat grass (*Bromus tectorum*) and red brome (*Bromus (rubens) madritensis Ssp. rubens*) The annual grasses (mostly introduced) will germinate under much cooler conditions than the broad-leaved forbs. Many of the forbs are showy wildflowers. A number of sites in the mountains provide sheltered warmer sites which consistently provide the warm moist conditions necessary for wildflower germination. A number of weedy annual species favor warm-season conditions. This results in some species being absent, others restricted to roadsides and other water concentration areas. Others species become less dominate in the cool-season climate. The based upon the criteria used in the California Desert Conservation Area Plan of 1980 and professional judgment, the vegetation, on the allotments where only sheep are grazed, is considered to be in good condition with a stable trend.

2. Environmental Consequences

a. Impacts of Proposed Action

Vegetation (General): Livestock grazing impacts vegetation through removal by grazing and by trampling. In the early part of the grazing season (March-April) the sheep diet will consist primarily of

annual (ephemeral) vegetation. Later in the season (late April-May) as the annuals dry up, the sheep will shift part of their use to browse (brush) species such as Spiny hop-sage. The sheep make little use on the bunch grasses such as Indian ricegrass (*Achnatherum (Oryzopsis) hymenoides*) and Desert needlegrass (*Achnatherum (Stipe) speciosa*). When the sheep are spread out and moving, the sheep typically skim the vegetation and the consumption rates are difficult to measure because of the rapid growth of the ephemeral vegetation and the high variability in site to site production. The stipulations require minimum ephemeral production rates to open the range and minimum residual productions (230 pounds per acre, see proposed action). At these grazing allocations, there would be a considerable standing biomass of annuals left for soil protection and seed production. This is also adequate cover to carry wildfires through these shrub dominated plant series.

Concentration areas such as watering, corralling and shipping sites could have trampling impacts sufficient to damage all standing biomass including both annuals and perennials. If the intense uses averaged 3 acres per day, it is estimated that up to 3,800 acres could be impacted in concentration areas. Watering sites are estimated to total nearly 1,300 acres of this use. Watering sites are normally set up in roads which are already heavily impacted reducing the actual area impacted well below the 1,300 acres. Several corral sites have been used for 60 years or more every year there have been sheep in the area. On these sites, the vegetation has been converted to annuals. At these corrals, it is expected that continued use would not result in any additional long term changes in vegetation. Sampling conducted on existing old concentration sites found a range between 0.24 and 2.14 acres disturbed. The 2.14 acre site was an old fenced range improvement with permanent fences, a scale unit and a loading shoot. Even with that site, the mean size for a concentration area was 0.83 acres. The implementation of the proposed action would not result in significant impacts to vegetation.

The vegetation removed by grazing is renewable on a sustained basis. Heavy use sites would revegetate once the impacting uses are removed, based upon observations at sites that have been used as corrals for many years. The dominance would change to more weedy annual species with a corresponding loss of woody perennial species at the repeatedly used corral sites.

b. Impacts of No Action Alternative

The impacts of the no action alternative would be similar to the Proposed Action alternative. Differences would include grazing over a larger area (35%) and possibly later grazing on the perennial species.

c. Impacts of No Grazing Alternative

No annual or perennial vegetation would be trampled or removed by sheep. There would not be any expected changes in vegetation composition on an overall basis. Some high impact type sites may increase their perennial cover. The reestablishment of woody perennial species could take 20 or more years once grazing is removed. Standing Biomass levels could increase.

CUMULATIVE IMPACTS

Background:

There are a number of resource disturbing activities in the western Mojave Desert that could result in impacts similar to sheep grazing. This EA is tiered to the WEMO plan where many of these impacts are documented (USBLM 2005a) and are incorporated by reference. These include paved and unpaved roads, OHV activities, mining, utility corridors, residential and commercial development, military activities and livestock grazing. The several hundred miles of paved highways and county roads plus city streets, thousands of old mines, operating mines, utility corridors and development activities, tend to be permanent conversions of sites and constitutes a total loss of the site productivity. Mining in the area dates back to the late 1800s and continues to today. Impacts to resources are the obvious mine spoils and buildings, but also include damage to vegetation resources as herds of livestock were driven to the mines and held for food and the harvesting of “sage and greasewood” to fuel the boilers for the mills (Starry 1974). OHV activities can be short duration, but are generally repeated throughout the year. Military activities currently occur at major ranges in the region including the Navy’s China Lake and Mojave B ranges, the Air Force Edwards AFB and the army at Fort Irwin. Historically most of the area was used by the military during WW2 and additional bases existed at Mojave and Cuddeback. These allotments have seen over 130 years of grazing. In the 60 years prior to the Taylor Grazing Act (1934), large herds of both cattle and sheep used the area with no regulation. Some historical records indicate that over 20,000 head of cattle and nearly 1,000,000 head of sheep (Powers 1987 and Georgetta 1972) used the area during the early years prior to the grazing service. Under the proposed action, approximately 20,000 sheep would graze on these allotments in a good year. Using the USDA model (MDAQMD 1995) approximately 0.3% of the desert portion of eastern Kern County would be impacted by hoof action each year (approximately 1,568,000 acres in Kern Co in CDCA, 479,000 acres in sheep grazing allotments and 1% of area impacted by hoof action).

Biological Soil Crusts:

As noted, there are a number of soil disturbing activities in the western Mojave desert. The roads, mining, rights-of-ways and development activities tend to be permanent dedication of sites and constitute a total loss of the crustal community. This aided by the fact that as the sheep move through the area in a loose aggregate, a large percentage of the soil surface is not trampled by sheep hooves and can aid in the recovery time by increasing the interface between disturbed soils and undisturbed soils. The net cumulative impact of sheep grazing in the region is very small because sheep grazing is a small part of the regional activity and the sites will recover within a short period of time.

Air Quality:

The cumulative effect area for air resources for the proposed action is the Trona, Indian Wells Valley Maintenance areas and the Coso Junction PM10, the Owens Valley and San Bernardino County PM10 nonattainment areas and the East Kern County Ozone nonattainment area. The measure of cumulative emissions is reflected in concentrations measured at a series of monitoring stations located in each of the air quality planning areas. Only two areas have recorded concentrations above the NAAQS in the past 10 years. These occurred at Coso Junction and Owens Lake and were a result of a forest fire and dust from the Owens Lake Bed (GBUAPCD 2004). There are a number of sources of emissions in the Mojave Desert Air Basin and in the area of the grazing allotments. These major sources include stationary sources such as industrial processes, Area sources such as construction and demolition,

mining, and travel on unpaved roads and Mobile sources such as vehicles (ARB 2006b). The total estimated PM10 emissions in the Mojave Desert Air Basin from all sources are 81,979 tons per year (ARB 2006a&b). The worst case PM10 emission levels occur with the no action alternative. With this case the PM10 emissions would be approximately 35.1 tons per year (approximately 0.04% of the basin emissions). The proposed action would result in approximately 26.25 tons per year of PM10 (approximately 0.03% of the basin PM10 emissions). All of these emission levels are within the levels in the attainment demonstrations in the SIPs and the cumulative NAAQS 24 hour and one year PM10 emission standards and the one hour ozone emission standards and are not likely to result in or contribute to exceedences of the National Ambient Air Quality Standards.

Invasive non-native species:

There are a number of activities that result in site modifications and/or are vectors to move invasive/non-native species. Construction activities can disturb large areas and construction equipment is a well known carrier of seeds as it moves from infested areas to non infested area. Road maintenance moves seeds along the road sides as it works and fill used for maintenance can contain seeds. Several new exotic species are following roads into and through the desert. OHV use modifies sites that can encourage exotic species. Sheep use at intense use sites such as corrals, bedding areas and watering sites can cause conditions that favor some invasive non-native species. For the most part these will be preexisting sites and the species will already be there. None of these alternatives would result in significant impacts from invasive non-native species.

Soils:

Eliminating grazing activities would make little changes in soil losses occurring in the region. Many of the possible grazing intense use sites are already being used for OHV and camping uses. Most of the regional erosion problems come from poor drainage on and adjacent to roads and trails.

Special Status Plants:

A number of activities in the region potentially could impact Special Status Plants. These include roads, rights-of-ways, military activities, residential and commercial development OHV use and grazing. Many of these activities result in total habitat destruction. Sheep grazing is more likely to cause the loss of individual plants. The special status plants have coexisted with sheep grazing for over 100 years. The historic use far exceeded the current proposed action and alternatives. It is unlikely that sheep grazing would cause significant impacts to any of the Special Plant Populations

Water:

Grazing represents only a small portion of the non-point-source pollution in the watersheds and the BMPs are not likely to change the impaired classification for the watersheds (which is based upon domestic water quality issues).

Table 3b Cumulative Impacts to Resource by Public Land Use

Land use -> Resource	Proposed Action	No Action	No Grazing	Paved Roads	Unpaved Roads	OHV	Mining	Rights of Ways	Development
Air Quality	Minimal Impact less than .03% of regional emissions no long term impact	Minimal Impact less than .04% of regional emissions no long term impact	No impact	6.7% of regional PM10 emissions	51% of Regional PM 10 emissions	13% of regional PM10 emissions in 1990	9% of regional PM10 emissions	Unknown*	10% of regional PM10 emissions
Biological Soil Crusts	Minimal impact resource renewable at first rain. Approximately 1% of allotment area disturbed each year (4,800 acres)	Minimal impact resource renewable at first rain Approximately 1% of allotment area disturbed each year (6,400 acres)	No impact	Paved roads are a total dedication of resources and amount to 2% of the area in the west Mojave area	unpaved roads are a total dedication of resources and amount to approximately 1000 miles on BLM in allotments (1200acres)	separate from unpaved road travel use limited to Spangler Hills, Dove Springs and Jawbone Canyon Open Areas (69,000 acres)	Casual use in El Paso Mts with mining at Randsburg/ Red Mt area also some Sand and Gravel represent partial to total loss of habitat	major corridors through Cantil, Monolith, Boron, Bissel, Spangler, Rudnick and Hansen allotments total dedication of sites	Total dedication of sites to use in towns, residuntal, and development in area with population of over 200000
Invasive, Non-Native Species	Intense use sites favor some non- native invasive species (3800 acres) Historic very heavy use Current use around 10% of historic use	Intense use sites favor some non- native invasive species (3800 acres) Historic very heavy use Current use around 10% of historic use	Historic use sites will recover to resemble surrounding specie mix and densities Historic very heavy use Current use around 10% of historic use	Roadsides and associated maintenance are a major vector for introduction of new species	Roadsides and associated maintenance are a major vector for introduction of new species	Intense use sites favor some non- native invasive species	Intense use sites favor some non- native invasive species Construction equipment is a major vector for introduction and spread of new species	Intense use sites favor some non- native invasive species Construction equipment is a major vector for introduction and spread of new species	Intense use sites favor some non- native invasive species Construction equipment is a major vector for introduction and spread of new species landscaping can introduce new species.
Soils	small surface disturbance especially in	small surface disturbance especially in	none						

	concentration areas Around 1% of allotment areas	concentration areas Around 1% of allotment areas							
Special Status Plants Species	some potential	Some potential	No potential	none any new construction would require Environmental Clearances	many occurrences are along unpaved roads where they have less competition and more moisture	many occurrences are along unpaved roads where they have less competition and more moisture	No observed Impacts from current mining	No observed Impacts from current ROWs	None around current population centers
Water Quality	None	None	None	some from runoff	some from runoff and surface erosion also channeling water		Possible from toxics and erosion	Problems from poor drainage at a number of sites	General problem from storm water discharge and waste water
Vegetation	Moderate to renewable vegetation recovery in one growing season Historic very heavy use Current use around 10% of historic use	Moderate to renewable vegetation recovery in one growing season Historic very heavy use Current use around 10% of historic use	none Historic very heavy use Current use around 10% of historic use	total dedication of sites	total dedication of sites	Series of short duration uses that especially physically impact smaller plants repeatedly and can remove all vegetation at camping and staging areas Current competitive use is less than 50% of historic use	can result in long term total dedication of site	can result in long term total dedication of site	can result in long term total dedication of site

Vegetation:

Grazing activities are short duration and allow for yearly recovery. The grazing strategies call for grazing the sheep in a loosely aggregated flock and only doing one pass through the area each season. This strategy results in subjecting the plant and soil community to 1 to 2 hours of grazing and then allow for a minimum of eleven months rest. Grazing consumes a portion of the renewable production and the rest and restrictions on use allow for recovery. Continuing sheep grazing would constitute the continuation of a use at a level 10% of its historic level 50 years ago with a number of environmental safeguards that did not exist 25 years ago. Sheep grazing is one of several land uses that result in impacts to vegetation. Other impacting uses include paved and unpaved roads, rights-of-ways, residential and commercial construction and OHV use. All of these uses, except OHV use, result in a total removal of vegetation from areas. OHV use can be removed allowing recovery. This has been occurring through route designation and closures of routes in Wilderness. OHV racing has also declined over 50% in the last 16 years. The removal of grazing would still allow the other uses to continue to impact vegetation.

Cultural Resources:

The degree of potential cumulative impacts and effects to cultural resources, to a large degree, depends upon which allotment is at issue. The size, location relative to the prehistoric and historic uses of it, along with other BLM approved uses within the allotment, all factor into the cumulative determinations.

Allotments such as **Bissell, Boron, Cantil Common, Monolith-Cantil, and Warren** share common characteristics in terms of terrain and vegetation patterns. They are also close to the urban communities of Mojave, Rosamond, California City, Ridgecrest, and Barstow. While not yet quantified, there are on-going and increasing OHV uses occurring within these allotments by residents of these communities because of their close proximity. When factored into these OHV use levels, it appears that any increase in the potential effects upon cultural resources that might be caused by sheep grazing use within these five allotments do not reach significant levels or thresholds.

The **Antelope Valley** Allotment, like the five Allotments discussed above, is located within rolling flatlands next to the communities of Mojave and Rosamond. Increasing use of its acreage for OHV recreation purposes by local residents is also occurring. A more important cumulative impact issue though, is the on-going planning and construction of wind turbine facilities in this part of the Antelope Valley. If added to the potential adverse effects that the construction of these wind energy facilities could have upon cultural resources within the allotment, those effects that could potentially be caused by sheep grazing do not reach significant levels.

The three allotments that occur in the foothills of the Sierra Nevada and Tehachapi Mountains: **Hansen, Rudnick, and Walker Pass**, and the two near Ridgecrest, the **Spangler Hills** and **Lava Mountain**, and the **Cantil Common** share similar environmental conditions and were used extensively in both prehistoric times and the historic era. Enough cultural resource studies have been completed within these allotments over the past 25 years to establish parameters for determining whether a site is eligibility for the National Register of Historic Places. This research has also provided the opportunities to view and gauge, through monitoring practices, the types and extent of effects to cultural resources that are occurring. By far, OHV use within the three designated OHV Open Areas of Jawbone Canyon, Dove Springs, and Spangler Hills, which then continues into those areas surrounding them, appear to have greater adverse effects upon cultural resources than those noted for livestock grazing. When added to the effects of OHV use within these six allotments, those adverse effects that could potentially be

caused by sheep grazing associated with the proposed action do not contribute significantly to any increased adverse cumulative effects upon cultural resources.

Native American Concerns:

The combination of grazing and other activities in the area, such as maintenance and use of the Los Angeles Aqueduct, power transmission lines and their associated access roads, along with extensive recreation and OHV activities within the area could be at significant levels. However, compared to these other on-going activities, the cumulative effects of sheep grazing is not in itself a significant factor.

Recreation:

No cumulative impacts would be experienced by participants while partaking in recreational opportunities within the allotments.

Wildlife:

Cumulative Impacts for Proposed Action:

Within these 5 allotments (***Cantil Common, Lava Mountain, Monolith-Cantil, Rudnick Common, Spangler***), other activities such as OHV use, mining, and fire, along with natural events would continue to impact wildlife species and their habitats. In addition, illegal dumping is part of the cumulative impacts occurring on all the allotments. Some dumping is related to illegal OHV users or other recreational users leaving their garbage. Other illegal dumping involves hauling garbage out to BLM lands and dumping it there. More intense management of these activities under the Desert Plan is reducing the cumulative impacts in the areas to be grazed. Motorized recreation can be expected to increase and continue to impact the desert. Mining activity is likely to continue but is localized and can be mitigated on site. Additional cumulative impacts result from the LA aqueduct and the power lines that cross the Rudnick allotment. Road grading and maintenance activities impact wildlife and their habitats. Power lines provide nesting sites for avian predators and enhance OHV use of an area. The Rudnick allotment is also a cattle grazing allotment which supplies another contribution to cumulative impacts. The West Mojave Plan has a number of proposals to minimize impacts from all activities. Data from the DTNA 60-day study plots suggests that cumulative impacts from all these activities would continue to slow the recovery of desert tortoise outside of DWMAs. Sheep grazing is just another use that contributes to cumulative impacts. The amount of that contribution greatly depends on the specific location. In the El Paso Mountains (Cantil allotment), in places where there is no major mining disturbances, the cumulative impacts from sheep grazing are substantial. On the other hand, in the Rudnick Common allotment which has been grazed once in the past 16 years, sheep grazing contributes a small amount to cumulative impacts. About half of the Spangler allotment is within a designated OHV "Open Area". Therefore, sheep grazing in this area does not greatly contribute to cumulative impacts since much of the wildlife habitat is already degraded from OHV traffic. The Lava Mountain allotment has very few other uses. About 2/3 of the allotment is within the Golden Valley Wilderness. In this allotment sheep grazing is the only contribution to cumulative impacts other than the natural impacts such as drought.

Eliminating sheep grazing from 127,714 acres of Critical Habitat in the Cantil and Monolith-Cantil allotments contributes to recovering Desert Tortoise Critical Habitat range wide. The

WEMO Plan states that with regard to listed species, including the tortoise, the cumulative impacts will not be significant or adverse. The increased protection within DWMAs, along with more route designation outside of these areas will offset impacts of increased OHV activity, mining, and land development.

The 127,714 acres of Critical Habitat discussed above is also within the MGS Conservation Area. Therefore, the Mohave Ground Squirrel will also benefit from the reduction in grazing. MGS populations are expected to increase, depending on winter precipitation.

Sheep have been grazing in these allotments for over a hundred years, but only in the last 25 years has this activity been managed under the CDCA Plan. It has been demonstrated at the DTNA and elsewhere that the desert- scrub community can redevelop a healthy native annual plant component if rested from grazing.

Cumulative Impacts:

Within these 4 allotments (***Bissel, Boron, Hanson Common, Walker Pass***) other activities such as OHV use, mining, and fire, along with natural events would continue to impact these species and their habitats. More intense management of these activities under the Desert Plan is reducing the cumulative impacts in the areas to be grazed. Motorized recreation can be expected to increase and continue to impact the desert. Mining activity is likely to continue but is localized and can be mitigated on site. The West Mojave Plan has a number of proposals to minimize impacts from all activities. Data from the DTNA 60-day study plots suggests that cumulative impacts from all these activities would continue to slow the recovery of desert tortoise outside of DWMAs.

Sheep have been grazing in these allotments for over a hundred years, but only in the last 25 years has this activity been managed under the CDCA Plan. It has been demonstrated at the DTNA and elsewhere that the desert- scrub community can redevelop a healthy native annual plant component if rested from grazing.

Cumulative Impacts:

Within these 2 allotments (***Antelope Valley and Warren***), other activities such as OHV use, mining, and fire, along with natural events would continue to impact these species and their habitats. More intense management of these activities under the Desert Plan is reducing the cumulative impacts in the areas to be grazed. Motorized recreation can be expected to increase and continue to impact the desert. Mining activity is likely to continue but is localized and can be mitigated on site. The West Mojave Plan has a number of proposals to minimize impacts from all activities. Data from the DTNA 60-day study plots suggests that cumulative impacts from all these activities would continue to slow the recovery of desert tortoise outside of DWMAs.

Sheep have been grazing in these allotments for over a hundred years, but only in the last 25 years has this activity been managed under the CDCA Plan. It has been demonstrated at the DTNA and elsewhere that the desert- scrub community can redevelop a healthy native annual plant component if rested from grazing.

Cumulative Impacts for No Action:

Cumulative Impacts for this alternative would see an increase in grazing of over 100,000 acres, over the Proposed Action. The same impacting activities would continue to take place as for the other alternatives. Much of the discussion above is similar for this alternative.

Cumulative Impacts for No Grazing

OHV use, mining, and other activities would continue on some of the allotments. Those areas such as wilderness, the DTNA, and other areas with restrictions on certain activities would see a reduction in cumulative impacts. In some cases, there would be no impacting human activities taking place. This would not guarantee that the tortoise population would recover quickly in these areas. Data from the DTNA 60-day study plots suggests that tortoise densities are slow to recover even in non-grazed habitat. Under all alternatives, recovery of the tortoise will be a long process. At a rate of 2% (WEMO, 2004) per year a population of 100 animals would still require 10 years to reach a population of 122. This would be under optimum conditions. MGS populations would bounce back more quickly (applicable to allotments in MGS Conservation Area - Cantil Common, Lava Mountain, Monolith-Cantil, Rudnick Common, Spangler allotments). OHV, mining, cattle grazing and other human activities, as well as drought, would continue to impact tortoises in areas where sheep grazing is eliminated.

Wetland & Riparian

Cumulative Impacts of Proposed Action:

Springs and seeps were historically impacted by people obtaining water for personal use. Many water sources were impacted by development for “wildlife water”. Sheep herders probably used them to obtain water for camp use. Currently, vehicle use and camping near the Sheep Spring Tank in the Cantil allotment are contributing impacts to the upland vegetation. In addition, volunteers maintain the developed seeps and springs using vehicles. Sheep grazing contributes additional impacts. Species composition of upland shrub vegetation has been altered on an acre of land below the tank. Saltbush and Cheesebush has increased. Bare ground has also increased by sheep watering at the tank. This amount of disturbance is small in relation to the amount of upland shrub vegetation in the area. Sheep related impacts will decrease after the wildlife watering troughs below Sheep Spring tank are fenced and the tank is covered as described in the proposed action. Wildlife will benefit from the proposed action since there will be more habitat below the tank and dependable water available.

No Action Alternative

Sheep grazing contributes to cumulative impacts the area around Sheep Spring Tank.

Livestock Grazing:

Livestock grazing will continue to impact all allotments involved in sheep grazing, however, this impact is expected to be light because, as noted in the initial paragraph (above) of the Cumulative Impacts section, approximately 0.3% of the area grazed by sheep in eastern Kern County will be impacted by hoof action. Areas of unloading, loading, bedding, and watering will continue to be impacted more heavily because sheep are more concentrated for these activities. However, in most instances these areas are used repeatedly from year to year and, therefore, new sites are not developed and negatively impacted.

The stipulations regarding the diet of sheep which are enumerated in WEMO may result in less sheep grazing activity because permittees may have to remove their sheep earlier. The stipulation that sheep must be removed when their diet shifts from primarily ephemeral forage to perennial forage and the stipulation that when thresholds of 25-30% are reached on key forage species that sheep must be removed implement variable limitations that are tied to the prevailing weather conditions for the particular year. If the dietary shift occurs early in May sheep will be removed prior to the traditional closing date for the spring grazing of May 31st. In very good years the dietary shift may not occur as early and the sheep would be allowed to graze through May 31st. The cumulative impact related to these stipulations is that permittees may not be able to plan on how long they may graze in the desert before going to more northerly grazing allotments. The costs and risks of not being able to predict their spring grazing season may be too great to allow them to come to the desert to graze and thus, there is likely to be an attrition of sheep permittees and grazing on the desert.

Cumulative Impacts of No Action

The same as for the proposed action.

Cumulative Impacts of No Grazing

Areas of the range formerly grazed by and impacted by sheep would slowly recover with time.

APPENDIX 1
ALLOTMENT MAPS

APPENDIX 2

FORAGE SPECIES
PROPER USE FACTORS

APPENDIX 2
PROPER USE FACTORS FOR FORAGE SPECIES
IN THE RIDGECREST FIELD OFFICE AREA

Proper Use Factors (P.U.F.'s) are related as a percentage of plant that is allowed to be grazed. Usually an average is taken from sampling a local population at a site.

PLANT- SCIENTIFIC NAME	COMMON NAME	P.U.F.
TREES & SHRUBS		
<i>Acamptopappus sphaerocephalus</i>	Goldenhead	10
<i>Ambrosia dumosa</i>	Burrobush	10
<i>Artemesia spinescens</i>	Budsage	20
<i>Artemesia tridentata</i>	Great Basin Sage	<5
<i>Atriplex canescens</i>	Four-wing Saltbush	40
<i>Atriplex confertifolia</i>	Shadscale	10
<i>Atriplex hymenelytra</i>	Desert Holly	<5
<i>Atriplex polycarpa</i>	Cattle Spinach	20
<i>Chrysothamnus nauseosa</i>	Rubber Rabbit Brush	<5
<i>Chrysothamnus viscidiflorus</i>	Green Rabbit Brush	<5
<i>Coleogyne ramosissima</i>	Blackbrush	<5
<i>Encelia farinosa</i>	Brittlebrush	<5
<i>Ephedra nevadensis</i>	Nevada joint fir, Mormon Tea	30
<i>Ephedra viridis</i>	Mountain joint fir	20
<i>Ericameria cooperi</i>	Goldenbush	0
<i>Ericameria linearifolius</i>	Linear-leaved Goldenbush	<5
<i>Eriogonum fasciculatum</i>	California buckwheat	20
<i>Eriogonum wrightii</i>	Wright's buckwheat	40
<i>Grayia spinosa</i>	Spiny Hopsage	30

<i>Gutierrezia sarothrae</i>	Snakeweed	0
<i>Hymenoclea salsola</i>	Cheesebush	<5
<i>Isomeris arborea</i>	Bladder-pod	10
<i>Juniperus californica</i>	California Juniper	0
<i>Juniperus occidentalis</i>	Western Juniper	0
<i>Juniperus osteosperma</i>	Utah Juniper	0
<i>Krascheninnikovia lanata</i>	Winter Fat	40
<i>Larrea tridentate</i>	Creosote bush	0
<i>Lepidium fremontii</i>	Desert Alyssum	<5
<i>Lepidospartum squamatum</i>	Scale-broom	<5
<i>Lycium andersonii</i>	Anderson thornbush	10
<i>Lycium cooperi</i>	Peach thornbush	10
<i>Machaeranthera tortifolia</i>	Desert aster	20
<i>Menodora spinescens</i>	Spiny menodora	20
<i>Opuntia basilaris</i>	Beavertail cactus	0
<i>Psoralea fremontii</i>	Indigo brush	10
<i>Salazaria mexicana</i>	Paperbag bush	10
<i>Salix lavaegata</i>	Red Willow	10
<i>Salvia dorii</i>	Purple Sage	10
<i>Senna armata</i>	Desert cassia	<5
<i>Stephanomeria pauciflora</i>	Desert Straw	30
<i>Tetradymia spinosa</i> var. <i>longispina</i>	Cotton felt-thorn	0
<i>Yucca brevifolia</i>	Joshua tree	<5

FORBS

<i>Mirabilis bigelovii</i>	Wishbone bush	40
<i>Sphaeralcea ambigua</i>	Desert Mallow	40

GRASSES

<i>Achnatherum hymenoides</i>	Indian Rice Grass	50
<i>Achnatherum speciosa</i>	Desert Needlegrass	50
<i>Distichilis spicata</i>	Saltgrass	30
<i>Erioneuron pulchellum</i>	Fluffgrass	20
<i>Hilaria jamesii</i>	Galleta grass	50
<i>Poa scabrella</i>	Pine bluegrass	50
<i>Sitanion hystrix</i>	Squirrel-tail	40
<i>Sporobolus airoides</i>	Alkali Sacaton	40

References:

1. Appendix XIII, Volume F of Final Environmental Impact Statement and Proposed Plan for the California Desert Conservation Area, Sept. 1980
2. Plant Checklist for BLM Ridgecrest, CA Field Office Area, 2006

APPENDIX 3

AVERAGE TIME SPENT ON PUBLIC LAND

APPENDIX 3: Average percentage of time spent grazing on Public Land in four allotments during the ephemeral grazing season. Note: Each percentage figure represents one band of sheep.

	Antelope Valley	Bissell	Boron	Monolith Cantil
1991	(100%), 10 days	35% 22 days (35%)* 26 days (5%) 4 days (10%) 4 days	Not Grazed	67% 53 days 59% 47 days
1992	(100%), 2 days (100%), 2 days	(100%)# 64 days (100%) 62 days	Not Grazed	(60%) 55 days (60%) 59 days
1993	Not Grazed	40% 28 days (5%) 3 days (5%) 2 days (5%) 2 days (5%) 2 days	Not Grazed	62%, 35 days (100%) 54 days (100%) 26 days (100%) 26 days
1994	Not Grazed	Not Grazed	Not Grazed	Not Grazed
1995	Not Grazed	(100%) 86 days	(100%) 55 days	(45%) 13 days (100%) 57 days
1996	Not Grazed	(2%) 1 day	(20%) 11 days	Not Grazed
1997	Not Grazed	Not Grazed	Not Grazed	Not Grazed
1998	(100%), 6 days (100%), 7 days	(100%) 74 days	(100%) 43 days (100%) 31 days (100%) 36 days	(45%) 14 days (45%) 14 days
1999	Not Grazed	Not Grazed	Not Grazed	Not Grazed
2000	Not Grazed	Not Grazed	Not Grazed	Not Grazed
2001	Not Grazed	13% 5 days 25% 13 days	18% 5 days 16% 4 days	64% 44 days 75% 50 days (45%) 43 days
2002	Not Grazed	Not Grazed	Not Grazed	Not Grazed
2003	Not Grazed	(86%) 46 days	34% 19 days 30% 8 days 46% 10 days	(45%) 25 days
2004	Not Grazed	Not Grazed	(11%) 5 days (11%) 5 days	(100%) 38 days
2005	Not Grazed	20% 12 days	17% 18 days 34% 36 days 12% 7 days	57% 50 days 59% 27 days 75% 23 days
2006	Not Grazed	33% 10 days	40% 21 days	27% 4 days 80% 25 days 35% 6 days
Average Percent of Time on Public Land		22% 12 days	24% 20 days	56% 24 days

* Parentheses indicate that there was no map reported by the sheep operator from which to calculate the percentage of time on public land. Where the number in parentheses is **less than** 100% the grazing officer consulted with the operator to reach an estimation for the amount of grazing that took place on public land.

100% figures are the default when there was no map or consultation upon which to base a calculation.

Note: Percentage figures and numbers of days spent on public land were copied or calculated from case file records kept at the BLM's Ridgecrest Field Office.

APPENDIX 4

RANGE IMPROVEMENTS

Appendix 4: Range Improvements Cantil Common Allotment

Project Name/No.	Location	Condition & Comments	Mitigation description
5004-Sheep Spring & Storage	T28S, R39E, S17	Functional	Provide for wildlife
5201-Last Chance Well	T28S, R38E, S33	Not Functional- CCC constr.	Convert to monitoring well
5203-Fuller Well, Windmill & Storage	T28S, R40E, S32	Not Functional	Convert to monitoring well
5204-Cornwine or Searles Well	T28S, R40E, S22	Not Functional- CCC constr.	Convert to monitoring well
5205-Adams Well	T28S, R40E, S29	Not Functional- CCC constr.	Convert to monitoring well
5206-Mansfield Well	T28S, R40E, S31	Not Functional-	Convert to monitoring well
5212-Black Hills Well	T28S, R38E, S18	Not Functional	Convert to monitoring well
5216-Inyo Well	T27S, R39E, S7	capped	
5217-Searles or Cornwine Well #2	T28S, R40E, S22	Not Functional	Convert to monitoring well
5224-Willow Spring Well	T28S, R40E, S20	Not Functional	Convert to monitoring well
5275-Inyo Storage	T27S, R39E, S7	Not Functional	remove
5277-Last Chance Storage	T28S, R38E, S33	Functional- CCC Construction	Maintain for Historic values
5362- Inyo Pipeline & Trough	T27S, R39E, S7	Not Functional- CCC constr,	Maintain for Historic values
5594-Atolia Holding Corral	T30S, R41E, S30	Not functional	Remove
5598-Black Hills Corral	T27S, R38E, S27	Not functional	Remove
5080-Laurel Mtn. Spring and Storage	unknown		Convert to monitoring well
5225-Rinaldi's Well	T28S, R39E, S19		Convert to monitoring well
5239-Black Hill's Well Solar Project	T28S, R38E, S28		Convert to monitoring well
5246-SW Area Groundwater Monitoring Well #2	Unknown		Maintain for monitoring groundwater
5249-SW Area Groundwater Monitoring Well			Maintain for monitoring groundwater

APPENDIX 5

CONSULTATION, COORDINATION & COOPERATION.

Below is listed the CCC with the permittee/lessees and other interested public that have been completed for this action.

May 6, 2004: Notice of Proposed Action (NOPA) sent out to affected interests and interested public. The NOPA covered Cantil Common, Spangler Hills, Lava Mountain, Rudnick Common, & Walker Pass Common allotments which encompass wilderness areas.

Affected Interests:

June 30, 2004: Chapters 1 & 2 and a letter sent to all sheep operators asking for comments and input to Sheep Environmental Assessment (SheepEA).

August 25, 2004: Chapters 1 & 2 of Sheep EA sent to all sheep operators.

September 30, 2004: Sheep EA (all four chapters) and proposed decision sent to all sheep operators.

March 3, 2006: Notice of vacated decision on proposed decision of September 2004 sent out from Ridgecrest Field Office to sheep operators.

April 7, 2006: Revised Sheep EA mailed out for 30 day comment period to all sheep operators.

Interested Public:

August 10, 2004: E-mail from Center for Biological Diversity (CBD) asserting that they and another member of the interested public had not been included in the previous mailing were being denied their right to review Chapters 1 & 2.

August 18, 2004: Chapters 1 & 2 of EA sent to CBD and Western Watersheds Project (WWP).

August 25, 2004: Chapters 1 & 2 of Sheep EA sent to all interested public.

September 24, 2004: Comments from California Native Plant Society received at Ridgecrest Field Office.

September 30, 2004: Sheep EA (all four chapters) and proposed decision sent to all interested public for comment and protest.

October 14-18, 2004: Document dated Oct. 14th from WWP received at Ridgecrest Field Office. Document contained comments and protests.

October 15, 2004: Comments and protests on Sheep EA by CBD received at Ridgecrest Field Office.

October 18, 2004: Comments and protests on Sheep EA by Desert Tortoise Preserve Committee (DTPC) received at Ridgecrest Field Office.

March 3, 2006: Notice of vacated decision on decision of September 2004 sent out from Ridgecrest Field Office.

April 7, 2006: Revised Sheep EA mailed out for 30 day comment period to all interested public and government agencies.

May 10-14, 2006: Documents dated May 10th from CBD and WWP received at Ridgecrest Field Office. Documents contained comments on Sheep EA.

Government Agencies:

September 30, 2004: Sheep EA (all four chapters) and proposed decision sent to all government agencies for comment and protest.

March 3, 2006: Notice of vacated decision on proposed decision of September 2004 sent out from Ridgecrest Field Office to all government agencies.

April 7, 2006: Revised Sheep EA mailed out for 30 day comment period to all government agencies.

July 28, 2006: Revised Sheep EA sent to California State Lands Commission for comment.

APPENDIX 6

WILDLIFE TABLES

Wildlife Species				
Scientific Name	Common Name	Habitat	Legal Status	Notes on Surveys and Monitoring
<i>Gopherus aggasii</i>	desert tortoise	Washes, rocky hillsides, and flat desert with sandy or gravelly soil. Creosote bush (<i>Larrea tridentata</i>), burrobush (<i>Ambrosia dumosa</i>), saltbush (<i>Atriplex</i> spp.), Joshua tree (<i>Yucca brevifolia</i>); diverse grasses and forbs essential as food; to 4,000 feet elevation	FT ST	Records throughout the sheep allotments, up to 4,000 feet, including Kelso Valley on west side of the Jawbone/ Butterbrecht ACEC. Recent monitoring efforts include Study Plot surveys at 3 separate sites at DTNA and one at Fremont Valley. Line Distance sampling in the Rends and a separate effort throughout west Mojave for two consecutive years. BLM transects in the Rands in 2004. One hectare plot surveys in 2002, 2003, and 2004 in the Jawbone Butterbrecht ACEC. Additional study in Rands on health of tortoises. Occurs in all except Antelope Valley and Warren allotments
<i>Anniella pulchra</i> <i>spp. pulchra and</i> <i>spp. nigra</i>	California legless lizard	sparsely vegetated woodland, sandy loam soils of stabilized dunes, and undisturbed desert scrub at the western edge of the Mojave Desert	CA species of concern	Occurs in the western Mojave Desert in the Antelope Valley and individual found in Jawbone Butterbrecht ACEC. Potentially occurs in the Antelope Valley and Rudnick Allotments.
<i>Circus cyaneus</i>	northern harrier	Migrant and wintering birds use upland habitats with low vegetation (saltbush or creosote scrub), but wintering birds tend to concentrate in agricultural fields.	CA species of special concern 2	Fairly common migrant and uncommon winter resident. Potentially occurs in all allotments.
<i>Aquila chrysaetos</i>	golden eagle	remote cliff ledges in mountains for nesting; forages widely across all habitats in the Mojave Desert landscape but prefers rolling foothills and mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, and cliffs and rock outcrops	BLM sensitive species, CA species of special concern 3	Frequent records during the breeding season, likely nesting areas in the El Pasos and the Sierra range. Nests in the Rudnick, Walker Pass, Hanson, and Cantil allotments Potentially occurs in all allotments

<i>Falco mexicanus</i>	prairie falcon	sheltered cliff ledges, bluffs, or rock outcrops for nesting; perennial desert grasslands and desert shrub lands in the Jawbone-Butterbrecht ACEC, the Rand Mountains, Fremont Valley and elsewhere in the Ridgecrest FO	BLM sensitive species, CA species of special concern 3	Widespread, but uncommon at all seasons. Robber's Roost, located in the north part of the Jawbone/Butterbrecht ACEC has had up to two pair of nesting falcons (Parker, 1993). Axelson (2000) reported an active prairie falcon aerie in the western part of the ACEC. Historical surveys on file at the Ridgecrest FO. Nests in Rudnick and Cantil allotments, possibly nesting in Hanson Potentially occurs in all allotments.
<i>Athene cunicularia</i>	burrowing owl	open, dry desert grass- and shrubland and in grass, forb and open shrub stages of pinyon-juniper woodland for foraging; nesting and roosting in ground squirrel or other rodent burrows	BLM sensitive species, CA species of special concern 2	Widespread winter migrants in the Ridgecrest FO area supplement resident birds. Breeding pairs are widely scattered across the area to be grazed by sheep. Potentially occurs in all allotments.
<i>Lanius ludovicianus</i>	loggerhead shrike	Foraging may occur in all habitats, especially those with open terrain and well-spaced lookout posts. Breeding requires patches of dense vegetation to hide nests.	USFWS Species of concern, CA species of special concern - addition	Winter migrants augment the resident population in the area to be grazed by sheep. Potentially occurs in all allotments.
<i>Toxostoma lecontei</i>	LeConte's thrasher	desert washes and flats with scattered shrubs, cacti, and a few small trees, including Joshua trees, plus large areas of open, sandy, or alkaline terrain	BLM sensitive species, CA species of special concern 3	Many records in the area to be grazed by sheep. Potentially occurs in all allotments.
<i>Spermophilus mohavensis</i>	Mohave ground squirrel	a diverse mix of shrubs, forbs, and grasses with canopies dominated by creosote (<i>Larrea divaricata</i>), <i>Atriplex</i> sp, or Joshua tree (<i>Yucca brevifolia</i>) woodland, important food sources are winterfat (<i>Krascheninnikovia lanata</i>) and spiny hopsage (<i>Grayia spinosa</i>): 2,200 to 4,900 feet at (Laabs and Alaback 1991, Leitner 2000)	ST	Trapping records for many areas within the sheep allotments. Occurs in the following allotments which are within the Mohave Ground Squirrel Conservation Area: Cantil, Lava Mountain, Monolith Cantil, Rudnick, Spangler Hills, Walker Pass.

<i>Perognathus xanthonotus</i>	yellow-eared pocket mouse	found in Joshua tree and pinyon-juniper woodlands, desert shrubland, montane chaparral and sagebrush, and bunchgrass lands between 3,380 and 5,300 feet elevation; know from 6 locales in a limited range between Kelso Valley to Sand Canyon on the interface between the Sierra Nevada and Mojave Desert; habitat and meteorological requirements for breeding are not known (Laabs, West Mojave Species Accounts, 1997)	BLM sensitive species	Records from the east slopes of the Sierras and Kelso Valley, borderline areas of sheep grazing. Potentially occur in the Rudnick Common allotment
<i>Euderma maculatum</i>	spotted bat	roosts in cliff crevices, habits and habitat preferences not well described; not a colonial species; seasonal migrations elevationally; foraging areas may be 20 miles or more away from roost; diet consists almost entirely of moths	BLM sensitive, CA species of special concern - addition	Very rare: records from Red Rock Canyon State Park only. Potential foraging habitat in riparian habitat and shrub habitat so could forage within sheep allotment. Potentially occurs in all allotments
<i>Antrozous pallidus</i>	pallid bat	roost in rock crevices, tree cavaties, buildings, bridges, and occasionally caves and mines in arid regions; colonial intra- and inter-specifically; food mostly flightless arthropods but may eat lizards, rodents, and even other bats	BLM sensitive, CA species of special concern - addition	Unknown if occurs in sheep allotment area, but potential foraging area is in riparian habitat and shrub habitat. Potentially occurs in all allotments

<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	forages in arid grasslands and deserts but ranges also into high-elevation forests and meadows; roosts occurs in caves, lava tubes, mine tunnels, buildings, and other structures; hibernates in cool caverns or mines; maternity colonies in warmer portions of caves; non-migratory; feeds on moths; location of preferred habitats in the Mojave Desert is poorly known.	BLM sensitive, CA species of concern 2	Records from mines within sheep allotments, Rademacher hills, other sites. Prone to disturbance - large colonies of female bats may abandon maternity sites after a single visit by people can cause the bats to abandon a roost. Potentially occurs in all allotments.
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Springs within the sheep grazing allotments (Cantil Common allotment), including those developed by California Department of Fish and Game

<u>Name of Spring</u>	<u>Riparian Vegetation</u>	<u>Location</u>	<u>Comments</u>
Coffee Can Spring	None	T29sR38eSec27	Southern El Pasos, just north of Garlock Road, drinker
Cut Tree Spring	None	T28sR39eSec31	El Paso Wilderness, drinker
Easter Spring	None	T28sR38eSec24	El Paso Wilderness, seep
Hennesy Spring Dev	None	T28sR40eSec19	El Paso, seep, drinker
Holland Spring Dev	Not much	T28sR38eSec8	No
LaMoureaux Spring Dev	None	T28sR39eSec18	El Paso Mtns, Covered seep
Sheep Spring	Herbaceous	T28sR39eSec17	El Paso Mtns, Spring has a buried collection box, water piped down to Cement tank, trough, this area often referred to "Sheep Spring Tank"
Louise Spring (= Sheep Spring on 7 ½ topo map)	Single mesquite tree	T28sR39eSec17	El Paso south of Sheep Spring Riparian area, fenced, with drinker.
Mesquite Spring Dev	Mesquite trees	T29sR39eSec29	El Paso Mtns, Fremont Valley, Dug out, seep
Midway Spring Dev	Herbaceous	T28sR39eSec20	El Paso Mtns, Covered, seep
Sesmonite Spring Dev	None	T29sR38eSec5	El Paso Mtns,
Sheep Spring Riparian Area	Cottonwoods & one tamarix	T28sR39eSec17	El Paso Mtns, no surface water
Sheep Spring Tank	Single mesquite tree	T28sR39eSec17	El Paso Mtns, artificial cement tank, with trough, water from Sheep Spring, 100 yards upstream
Steel Box Spring	None	T28sR39eSec30	El Paso Mtns, near El Paso Peaks, Drinker, dry

Willow Spring Development (Laurel Mountain)	None at springhead	T28sR40eSec20	El Pasos, ½ mile west of Laurel Mtn., developed, water piped to drinker, ¼ mile downstream
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References: BLM personnel;
Ridgecrest Chapter of Quail Unlimited;
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Lands. Department of Fish and Game.

APPENDIX 7

PROPOSED REGIONAL STANDARDS & GUIDELINES, &
FALLBACK STANDARDS & GUIDELINES
GOVERNING LIVESTOCK MANAGEMENT

PART I

The following standards & guidelines are the proposed regional standards which the BLM must meet to assure public rangeland health. These standards and the guidelines may not be implemented until approved and signed by the Secretary of the Interior.

Regional Standards:

Soil

Soils exhibit infiltration and permeability rates that are appropriate to soil type, climate geology, landform, and past uses. Adequate infiltration and permeability of soils allow accumulation of soil moisture necessary for optimal plant growth and vigor, and provide a stable watershed as indicated by:

- Canopy and ground cover are appropriate for the site;
- There is diversity of plant species with a variety of root depths;
- Litter and soil organic matter are present at suitable sites;
- Maintain the presence of micro biotic soil crusts that are in place;
- Evidence of wind or water erosion does not exceed natural rates for the site;
- Hydrologic and nutrient functions maintained by permeability of soil and water; infiltration are appropriate for precipitation.

Native Species

Healthy, productive and diverse habitats for native species, including special status species (Federal T&E, federal proposed, federal candidates, BLM sensitive, or California State T&E, and CDD UPAs) are maintained in places of natural occurrence as indicated by:

- Photosynthetic and ecological processes continue at levels suitable for the site, season, and precipitation regimes;
- Plant vigor, nutrient cycle, and energy flow are maintaining desirable plants and ensuring reproduction and recruitment;
- Plant communities are producing litter within acceptable limits;
- Age class distribution of plants and animals are sufficient to overcome mortality fluctuations;
- Distribution and cover of plant species and their habitats allow for reproduction and recovery from localized catastrophic events;
- Alien and noxious plants and wildlife do not exceed acceptable levels;
- Appropriate natural disturbances are evident;
- Populations and their habitats are sufficiently distributed to prevent the need for listing special status species.

Riparian/Wetland and Stream Function

Wetland systems associated with subsurface, running, and standing water, function properly and have the ability to recover from major disturbances. Hydrologic conditions are maintained as indicated by:

- Vegetative cover will adequately protect banks, and dissipate energy during peak water flows;
- Dominant vegetation is an appropriate mixture of vigorous riparian species;
- Recruitment of preferred species is adequate to sustain the plant community;
- Stable soils store and release water slowly;
- Plants species present indicate soil moisture characteristics are being maintained;
- There is minimal cover of invader/shallow-rooted species, and they are not displacing deep-rooted native species;
- Maintain shading of stream courses and water sources for riparian dependent species;
- Stream is in balance with water and sediment being supplied by the watershed;
- Stream channel size and meander is appropriate for soils, geology, and landscape;
- Adequate organic matter (litter and standing dead plant material) is present to protect the site and to replenish soil nutrients through decomposition.

Water Quality

Surface and groundwater complies with objectives of the Clean Water Act and other applicable water quality requirements, including meeting the California State Standards, as indicated by:

- The following do not exceed the applicable requirements: chemical constituents, water temperature, nutrient loads, fecal coliform, turbidity, suspended sediment, and dissolved oxygen;
- Achievement of the Standards for riparian, wetlands, and water bodies;
- Aquatic organisms and plants (e.g., macro invertebrates, fish and algae) indicate support of beneficial uses;
- Monitoring results or other data that show water quality is meeting the Standard.

Regional Guidelines:

- Facilities shall be located away from riparian-wetland areas wherever they conflict with achieving or maintaining riparian-wetland functions.
- The development of springs and seeps or other projects affecting water and associated resources would be designed to protect the ecological function and processes of those sites.
- Grazing activities at an existing range improvement that conflict with achieving proper functioning conditions (PFC) and resource objectives for wetland system (lentic, lotic, springs, adits, and seeps) shall be modified so PFC and resource objectives can be met, and incompatible projects shall be modified to bring into compliance. The BLM would consult, cooperate, and coordinate with affected interest and livestock producers(s) prior to authorizing modification of existing projects and initiation of new projects. New range improvement facilities shall be located away from wetland systems if they conflict with achieving or maintaining PFC and resource objectives.
- Supplements shall be located a sufficient distance away from wetland systems so they do not conflict with maintaining riparian wetland functions.

- Management practices shall maintain or promote perennial stream channel morphology (e.g., gradient, width/depth ratio, channel roughness, and sinuosity) and functions that are appropriate to climate and landform.
- Grazing management practices shall meet State and Federal water quality Standards. Where impoundments (stock ponds) and having a sustained discharge yield of less than 200 gallons per day to surface or groundwater are excepted from meeting State drinking water Standards per SWRCB Resolution Number 88-63.
- In the California Desert Conservation area all wildfires in grazing allotments shall be suppressed. However, to restore degraded habitats infested with invasive weeds (e.g., tamarisk) prescribed burning may be utilized as a tool for restoration. Prescribed burns may be used as a management tool where fire is a natural part of the regime.
- In years when weather results in extraordinary conditions seed germination, seedling establishment and native plant species growth shall be allowed by modifying grazing use.
- Grazing on designated ephemeral rangeland shall be allowed only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the of the grazing season been established, and adverse effects on perennial species are avoided.
- During prolonged drought, range stocking shall be reduced to achieve resource objectives and/or prescribed perennial forage utilization. Livestock utilization of key perennial species on year-long allotments shall be checked about March 1 when the Palmer Severity Drought Index/Standardized Precipitation Index indicates dry conditions are expected to continue.
- Through the assessment process or monitoring efforts, the extent of invasive and/or exotic plants and animals shall be recorded and evaluated for future control measures. Methods and prescriptions shall be implemented, and an evaluation would be completed to ascertain future control measures.
- Restore, maintain or enhance habitats to assist in the recovery of federally listed threatened and endangered species. Restore, maintain, or enhance habitats of special status species including federally proposed, Federal candidates, BLM sensitive, or California State T&E to promote their conservation.
- Grazing activities shall support biological diversity across the landscape and native species and micro biotic crusts are to be maintained.
- Experimental research efforts shall be encouraged to provide answers to grazing management and related resource concerns through cooperative and collaborative efforts with outside agencies, groups, and entities.

PART II

These are the Fall Back Standards and Guidelines which will be in effect until the Secretary of Interior signs the new Regional Standards and Guidelines.

43 CFR 4180.2 Standards and Guidelines for Grazing Administration

(1) Fallback standards.

- (i) Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and landform.
- (ii) Riparian – wetland areas are in properly functioning condition.
- (iii) Stream channel morphology (including but not limited to gradient width/depth ratio, channel roughness and sinuosity) and functions are appropriate for climate and landform.
- (iv) Healthy, productive and diverse populations of native species exist and are maintained.

(2) Fallback Guidelines

- (i) Management practices maintain or promote adequate amounts of ground cover to support infiltration, maintain soil moisture storage, and stabilize soils;
- (ii) Management practices maintain or promote soil conditions that support permeability rates that are appropriate to climate and soils;
- (iii) Management practices maintain or promote sufficient residual vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge, and stream bank stability;
- (iv) Management practices maintain or promote stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions that are appropriate to climate and landform;
- (v) Management practices maintain or promote the appropriate kinds and amounts of soil organisms, plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow;
- (vi) Management practices maintain or promote the physical and biological conditions necessary to sustain native populations and communities;
- (vii) Desired species are being allowed to complete seed dissemination in 1 of every 3 years (Management actions will promote the opportunity for seedling establishment when climatic conditions and space allow.);
- (viii) Conservation of Federal threatened or endangered, Proposed, Category 1 and 2 candidate, and other special status species is promoted by the restoration and maintenance of their habitats;
- (ix) Native species are emphasized in the support of ecological function;
- (x) Non-native plant species are used only in those situations in which native species are not readily available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health;
- (xi) Periods of rest from disturbance or livestock use during time of critical plants growth or re-growth are provided when needed to achieve healthy, properly functioning conditions (The timing and duration of use periods shall be determined by the authorized officer.);

- (xii) Continuous, season-long livestock use is allowed to occur only when it has been demonstrated to be consistent with achieving healthy, properly functioning ecosystems.
- (xiii) Facilities are located away from riparian-wetland areas wherever they conflict with achieving or maintaining riparian-wetland function;
- (xiv) The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites; and
- (xv) Grazing on designated ephemeral (annual and perennial) rangeland is allowed to occur only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and adverse effects on perennial species are avoided.

APPENDIX 8

CULTURAL RESOURCES

SUPPLEMENTAL PROCEDURES
FOR LIVESTOCK GRAZING PERMIT/LEASE RENEWALS

SUPPLEMENTAL PROCEDURES FOR LIVESTOCK GRAZING PERMIT/LEASE RENEWALS

A CULTURAL RESOURCES AMENDMENT
TO
THE STATE PROTOCOL AGREEMENT

BETWEEN

CALIFORNIA BUREAU OF LAND MANAGEMENT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

The purpose of this amendment is to address the National Historic Preservation Act (NHPA) Section 106 compliance procedures for processing approximately 400 grazing permit/lease (hereafter “permit”) renewals scheduled for 2004 through 2008. This amendment shall cover grazing permit renewals for livestock as defined in 43 CFR 4100.0-5 as “....domestic livestock – cattle, sheep, horses, burros, and goats.” The following procedures will allow for renewal of the permits while maintaining compliance with the NHPA. Alternative approaches to this amendment may be developed by individual Field Offices, but such approaches shall fall under the Section 106 regulations of the NHPA (36 CFR Part 800) and shall require individual Field Office consultation with the SHPO.

These supplemental procedures are an amendment to the State Protocol dated April 6, 1998, which is scheduled for termination on October 25, 2004. These supplemental procedures will remain in effect when that Protocol is terminated and will become an amendment to a successor Protocol document.

This amendment deviates from the Protocol in *Section VI. Thresholds for SHPO Review*, which states, “*BLM shall complete the inventory, evaluation and assessment of effects and document all findings, including negative inventories and no effect determinations, in BLM files before proceeding with project implementation.*” This amendment would allow for renewal of an existing grazing permit prior to completing all NHPA compliance needs as long as Protocol direction, the BLM 8100 Series Manual guidelines (Protocol Amendment F), and the following specific stipulations are followed:

I. Planning

Grazing permit renewals of any acreage size shall be scheduled for cultural resource compliance coverage over the next ten years. Such long term management includes scheduling for inventory, evaluation, treatment, and monitoring, as appropriate. Schedules for inventories of all renewals to be covered by this amendment shall be delineated by each participating Field Office and submitted to the SHPO and the State Office at the first annual reporting cycle for FY 2004.

This amendment shall only apply to the reissuance of grazing permit authorizations and existing range improvements. All new proposed undertakings for range improvements shall follow the

established procedures within the Protocol or 36 CFR 800, the implementing regulations for Section 106 of NHPA.

II. Inventory Methodology

To address the impacts of grazing on cultural resources, a Class II sampling or reconnaissance survey strategy shall be devised by the cultural resource specialist in consultation with range staff which focuses inventory efforts on areas where livestock are likely to concentrate within areas of high sensitivity for cultural resource site locations. Congregation areas where it has been shown that the greatest levels of impact are likely to occur are generally around springs, water courses, meadows, and range improvement areas such as troughs and salting areas.

All existing range improvements within areas of high sensitivity for the location of cultural resource sites shall be inventoried. However, due to the fact that cattle trailing occurs along fence lines and the area of impact is limited to a one meter wide swath and impacts to cultural resources are generally restricted to this corridor, existing linear improvements will not be inventoried except in areas of high sensitivity for the location of cultural resource sites.

Salting areas may change from season to season making locating these areas problematic. Salting locations will be assessed by the cultural resource specialist in consultation with range staff and the permittee. The permittee will be asked to provide a map designating salting areas and these locations will be inventoried if they occur in areas where the probability for the occurrence of cultural resources is high. All livestock loading and unloading areas and corral areas will also be inventoried within areas of high sensitivity for the location of cultural resources.

A Class I records search will also be conducted for each allotment to ascertain previously recorded site locations and areas of prior survey coverage which can be accepted as meeting current standards. Sites located within livestock congregation areas will be visited to evaluate grazing impacts.

All areas identified for inventory in the survey strategy shall be covered intensely. All unrecorded site locations will be recorded and a report of findings for each allotment will be completed. These investigations shall only address public lands administered by BLM. Private, state and county in-holdings will not be evaluated.

III. Tribal and Interested Party Consultation

Field Offices will be responsible for contacting and consulting with Tribes and interested parties as outlined in 36 CFR 800 and the 8120 manual guidelines. This will also meet BLM government-to-government responsibilities for consultation.

IV. Evaluation

Determinations of eligibility to the National Register of Historic Places shall only be undertaken on sites or properties where it can be reasonably ascertained or it is ambiguous that range activities will continue to impact sites and further consultation with SHPO could be required.

V. Effect

A. Range undertakings where historic properties are not affected may be implemented under the Protocol without prior consultation with SHPO. These undertakings shall be documented in the Protocol Annual Report.

B. Range undertakings where historic properties are identified within APEs, and where historic values are likely to be affected or diminished by project activities, require consultation with SHPO, and ACHP if necessary, on a case-by-case basis, pursuant to 36 CFR 800.5-6.

VI. Treatment

Standard Protective Measures can include but are not limited to:

A. Fencing or enclosure of livestock from the cultural resource sufficient to ensure long-term protection, according to the following specifications:

1. the area within the enclosure must be inventoried to locate and record all cultural resources; and
2. the enclosure (i.e.) fence must not divide a cultural resource so that a portion is outside of the fence; and
3. the cultural resource specialist will determine the appropriate buffer to be provided between the cultural resource and its enclosing fence.

B. Relocation of livestock management facilities / improvements at a distance from cultural resources sufficient to ensure their protection from concentrated grazing use.

C. Removal of natural attractants of livestock to a cultural resource when such removal, in the judgment of the cultural resource specialist, will create no disturbance to the cultural resource (e.g. removing vegetation that is providing shade).

D. Removal of the area(s) containing cultural resources from the allotment.

E. Livestock herding away from cultural resource sites.

F. Use salting and/or dust bags or dippers placement as a tool to move concentrations of cattle away from cultural sites.

G. Locating sheep bedding grounds away from known cultural resource sites.

H. Other protective measures established in consultation with and accepted by SHPO.

The Standard Protective Measures defined above may be used to halt or minimize on-going damage to cultural resources. If the standard protection measures can be effectively applied, then no evaluation or further consultation with SHPO on effects will be necessary. The adopted Standard Protective Measures shall be added to grazing permit "Terms and Conditions" as appropriate for each grazing permit issued or reissued as fully processed

permits (completed NEPA analysis, consultation, and decision). The “Terms and Conditions” for each permit may be modified by the addition, deletion, or revision of Standard Protective Measures as described in Section VII of these Supplemental Procedures.

VII. Monitoring

A. Field Offices shall adopt the following monitoring guidelines:

1. monitoring shall be conducted yearly and documented to ensure that prescribed treatment measures are effective; and
2. when damaging effects to cultural resources from grazing activities are ambiguous or indeterminate, Field Offices shall conduct monitoring, as necessary, to determine if degrading effects are resulting from grazing activities and if they are continuing to affect the characteristics that may make properties eligible to the NRHP or if they are otherwise adversely affecting the values of cultural resources.

B. When monitoring has yielded sufficient data to make effect determinations, the following apply:

1. When no additional degrading damage will likely occur because standard treatment measures are adequate to prevent further damage from rangeland management activities, SHPO consultation on a case-by-case basis is unnecessary.
2. When no additional degrading damage will likely occur, even without implementation of standard treatment measures, then no further treatment consideration of those resources is necessary, even if past grazing impacts to the ground surface are evident.
3. When additional degrading damage will likely occur, mitigation of adverse effects shall be addressed on a case-by-case basis, pursuant to 36 CFR 800.5-6.

When monitoring results or case-by-case consultation result in a determination concerning addition or deletion of Special Treatment Measure(s) for a specific allotment, then that Measure(s) will be added to, or deleted from, the Terms and Conditions of the fully processed permit for that allotment.

VIII. Disagreements

When a Field Office Cultural Heritage staff and Field Office Manager fail to agree on inventory, evaluation, monitoring, and application of Special Treatment Measures, then the Field Office Manager shall initiate consultation with the SHPO.

IX. Reporting and Amending

A. Each participating Field Office shall report annually to the SHPO and the State Office, a summary of activities carried out under this amendment to the Protocol during the previous fiscal year. The reporting shall be included in the Protocol Annual Report.

B. Annual reports shall summarize activities carried out under this amendment. These reports are not meant to be compilations of the individual project reports prepared for the range projects; they are meant to be programmatic summaries of data and significant findings.

C. Annual reporting shall include at least three major sections:

1. schedules and status of accomplishments in meeting schedules for cultural resource activities in relation to the range management program as identified in Stipulation I; and
2. results, as annual summaries of accomplishment and significant findings resulting from rangeland management cultural resource activities; and
3. appendices to the report that would include project, coverage and cultural resource location maps and tabular summaries of total number of cultural resources located, new cultural resources located, cultural resources evaluated, types of treatment measures employed at each location, and cultural resources monitored.

D. Annual reports may contain recommendations for new or revised treatment measures.

E. Either party to this agreement may initiate a process to negotiate new or revised treatment measures or to revise the schedule of inventories. When such a process is initiated, the parties to this agreement shall negotiate new or revised treatment measures or schedule of inventories and such revisions or additions shall be issued as Attachments to these Supplemental Procedures.

STATE DIRECTOR, BUREAU OF LAND MANAGEMENT, CALIFORNIA

/s/ james wesley abbott for

By Mike Pool

Date: 8/17/04

STATE HISTORIC PRESERVATION OFFICER, CALIFORNIA

/s/ milford wayne donaldson

By Milford Wayne Donaldson

Date: 8/18/2004

APPENDIX 9

Required elements for studying grazing impacts in the
Last Chance Canyon National Register District

Required elements for studying the impacts of grazing in the Last Chance Canyon National Register District.

Data base – existing cultural resources information on the National Register district consists almost entirely of archaeological data. This data is contained in the original National Register nomination package (1971), field notes taken in the 1960s and 1970s by the individual who prepared the nomination form, locational data on BLM cultural resources maps of resources that have been noted over the years but never formally recorded, and site records available in the BLM cultural resources data base and the State of California Cultural and Historic Resources Information System (CHRIS). This disparate data conglomeration will be assembled, field checked as necessary, and entered into an electronic GIS data base compatible with CHRIS. Because inventory and monitoring will be designed to study effects of grazing on various types of resources in various soil types, landforms, vegetation communities, topographical situations, etc., available data on these elements will also be entered into the GIS data base. Some of this data may already be available in the existing BLM data base. This will allow for more accurate, more rapid, and more meaningful design of the monitoring and inventory elements.

Monitoring – Monitoring will consist of setting up study plots in areas in which sheep will graze and monitoring the effects of sheep grazing on resources within those study plots. Monitoring will be designed to answer questions such as: Are some cultural resources more susceptible to impacts from sheep grazing than others? Are impacts more severe or more likely to occur to resources located within or on certain soil types, landform types, or vegetation communities? What kinds of impacts occur to cultural resources from sheep grazing? Study plots will be established to sample various site types, soil types, landforms, vegetation types, and other variables that may condition how sheep grazing affects sites. Plots will be mapped using GPS and a permanent datum will be established at each plot. Prior to sheep grazing, detailed records will be made of the cultural resources within each plot, their condition, size, location, etc. All cultural resources information observable on the surface will be noted. Photographs will document appearance, location, condition, etc. Detailed notes and measurements will be taken. Archaeological monitors should be on site as the sheep graze the area. Numbers of sheep in each band will be noted. After the sheep have grazed through the same analysis that was done before grazing will be repeated to note whether or not cultural constituents have been moved, modified, altered, have disappeared, or if other impacts have occurred. Depth of impact will also be measured. Other information may also be collected. Photographs will be taken after grazing as well. Results will be compiled for use in determining whether or not alterations in grazing should be made. Monitoring will take place for at least 2 grazing years.

Inventory – A systematic inventory for cultural resources will be carried out to sample the entire National Register district. The inventory will be designed to sample all soil types, landforms, vegetation types, and other environmental factors that may influence placement of cultural resources. All natural water sources within grazed areas will be inventoried for cultural resources. The sample will be large enough to define characteristics that affect resource distribution and densities. It can also be used to test the results of the monitoring effort by noting levels and types of impacts to cultural resources in varying circumstances and comparing those results with data collected in the monitoring plots.

Details of monitoring and inventory will be provided in a research design prepared prior to taking either action. Native Americans will be invited to participate in all phases to ensure that

areas or resources of concern to them for sacred values are included or not included within monitoring and inventory areas as they think appropriate.

APPENDIX 10
WEED INFORMATION

Peter Rowlands et al. (1982) in Brooks (1998) notes that alien species comprise a relatively small portion of the flora in the deserts. They indicate that there approximately 1836 species of vascular plants in the California portion of the Mojave Desert of which 156 (9%) are alien to the region. This compares to the global average of 16% alien plants (Rowlands et al. 1982). Inventory work, conducted over the last several years has detected more than twenty species of noxious/invasive/non-native species on or adjacent to public lands within the Ridgecrest Field Office. Ten of those species occur on or adjacent to sheep grazing allotments (table 1). Some of these species are quite widespread in the region and are found in all of the sheep allotments. Bossard et al. (2000) says: "Cheatgrass is widespread throughout California". Sheley and Petroff (1999) say that cheatgrass occurs throughout most of the United States, Canada and northern Mexico. Bossard et al (2000), Sheley and Petroff (1999) and Brooks (1998) all state that cheatgrass, red brome and mediterranean grass occur throughout the Mojave Desert. These three grass species are widespread in areas that have not had grazing and areas that have not been grazed for over 50 years. Infestations of some of the other weed species range in size from single plants to thousands of plants covering hundreds of acres. Most of the mustards and the Russian thistle tend to be roadside weeds along the west edge of the desert. Two of those species are rated noxious weeds (salt cedar and Russian thistle) by the state of California. Salt cedar has been identified for control in the area USBLM 2006b). Range expansions have been noted at several sites for salt cedar. Inventory work has detected a nearly ten fold increase in the area infested by salt cedar in the past ten years. The occurrence of salt cedar and its spread is not related to livestock use. Bossard et al (2000) note that the "presence of salt cedar is associated with dramatic changes in geomorphology, groundwater availability, soil chemistry, fire frequency, plant community composition and native wildlife diversity." Many of the non-native species are annuals. The composition of the annual flora will vary greatly in any given year and site to site due to climatic conditions and site characteristics. This variance will be in terms of species richness, species dominance, number of plants and in biomass production. Michael Bowers (1987) conducted research on this topic and concluded that: "Annual composition was not related to that of the previous year." In addition he stated: "These results suggest that compositional dynamics of annual plants in the Mojave Desert are keyed to processes that affect germination." Glenn Harris (1974-2006) has observed that in the western Mojave Desert these factors include day length, temperature and precipitation. The non-native annual grasses such as cheat grass, red brome and Arabian grass are thought to deteriorate wildlife habitat values by out-competing the more desirable native forbs for nutrients and space. Sanders (1992) states: "Under our current range condition model, many assume that a reduction in grazing pressure and improved grazing management will result in range improvement. However, in a stable lower successional state, range condition normally will not respond to changes in grazing or even to no grazing." Johnson and Mayeux (1992) further state that evidence is: "contrary to a common assumption that the dominance of undesirable plants on rangelands always serves as evidence of overgrazing by livestock and that the elimination or reduction in grazing pressure will result in the reduction of undesirable species and a return to 'climax' species composition." Field observations (Harris. 1974-2006) in the western Mojave Desert support those researchers in that the non-native grasses are found across the area, even where there has been no grazing, and areas that have been excluded from grazing for over 50 years reflect little or no change.

These allotments have seen over 130 years of grazing.. In the 60 years prior to the Taylor Grazing Act (1934), large herds of both cattle and sheep used the area with no regulation. Some historical records indicate that over 20,000 head of cattle and nearly 1,000,000 head of sheep used the area during the early years. The relation of livestock grazing to the invasions of weed species and their continued maintenance varies by species. A common trait of the more invasive noxious weeds is their ability to rapidly invade into habitats and completely displace the native

species. This dominance is displayed by salt cedar. Arabian grass favors disturbed sites and heavy sheep grazing seems to increase its dominance on high use sites (like corrals, bedding areas and watering areas. As the species is already wide spread in the desert, continued grazing is not changing the range of the species. As a contrast, the spread of some species into the desert has no evidence of livestock being the vector. In 1844 John Fremont crossed the desert entering over Tehachapi Pass. Fremont was one of the first European men into the region. He noted that Filaree (*Erodium cicutarium*) was a common species at that time (Fremont and Nevins 1957). This was a number of years before livestock entered the area. Sheley and Petroff (1999) attribute much of the spread of cheat grass to contaminated seeds and discarded hay and straw along the railroad rights of ways. Current new invader species such as Yellow star thistle and Sahara mustard seem to be following highway corridors into the desert.

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